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Seattle, Wash. Ordinances.

Ordinances Relating to Buildings

CITY OF SEATTLE

Published September, 1910, Under the Direction of

FRANCIS W. GRANT

Superintendent of Buildings

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DEPARTMENT OF BUILDINGS—

Francis W. Grant, Superintendent (member Board of Public Works). Office 222 Municipal Building. Phone: Main 8500, Local 4.

D. E. Hooker, Assistant Superintendent of Buildings. Office 114 Municipal Building. Phones: Main 8500, Local 5; Ind. 4100, Local 29.

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CITY OF SEATTLE STATISTICS

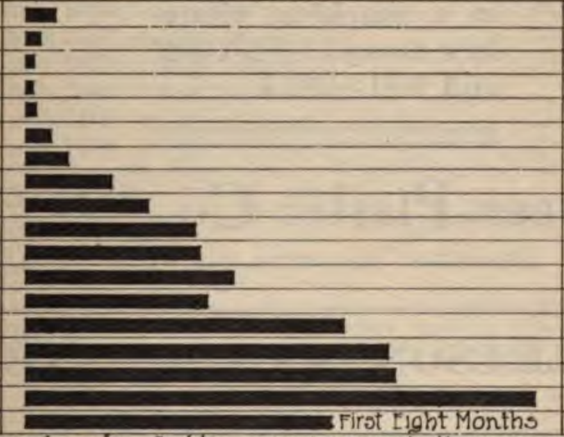
AREA OF THE CITY	
DRY LAND	55.86 SQUARE MILES
WATER	29.66 SQUARE MILES

LATITUDE 47° 36' 06' – LONGITUDE 122° 19' 55" (At Pioneer Place)

POPULATION (Estimated) 240,000. DENSITY 4,117.41 per. sq. mile

VALUE OF PROPERTY OWNED BY THE CITY	
Under Control of Park Board	$ 5,704,970.
Under Control of Library Board	200,572.
Under Control of Building Department	2,841,363.

VALUE OF BUILDING PERMITS ISSUED



1893	$1,112,509
1894	467,171
1895	284,890
1896	201,081
1897	360,131
1898	906,445
1899	1,570,066
1900	3,263,022
1901	4,569,768
1902	6,325,108
1903	6,495,781
1904	7,808,120
1905	6,704,784
1906	11,920,488
1907	13,572,770
1908	13,777,329
1909	19,044,335
1910	11,454,235

Street Frontage of New Buildings First Eight Months 1910 79,207 Feet

Number of Sleeping Rooms in New Buildings First Eight Months 1910 5,676

SEGREGATED ITEMS FOR 1909	
Total Number of Permits Issued	14,885
Total Valuation of Fees Received	$13,906.35
Total Number of Inspection Visits Made	58,484
Average Number of Inspections per day by each Inspector	23
Buildings Found Started without Permit	716
Buildings Stopped for Deviation from Ordinance	530
Buildings Declared Unsafe and ordered Vacated	40
Total Number Permits for Detached Residences	3,270
Average Value of all Permits Issued	$1,279
Total Number of New Fire Escapes accepted	93
Total Number of New Assembly Halls and Theaters	45
Greatest Number of Permits in one day (May 10)	92
Greatest Valuation Permits Issued in one day (March 26, '09)	$805.535.
Percentage of New Buildings Fireproof (on basis of Value)	20. %
Percentage of New Buildings Semi Fireproof (on basis of Value)	23.3%
Percentage of New Buildings Frame	57.7%
Percentage of Frame Buildings to all others (on basis of Number of Permits)	98.15%
Percentage of Salaries Met by Fees	49. %

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BUILDING ORDINANCE
CITY OF SEATTLE

Published by authority of the Superintendent of Buildings for the convenience of Inspectors, official ordinances being rearranged and abbreviated slightly to that end.

Original Ordinance Number 17240.

Ordinance 22182 repeals Sections 3 and 4.

Ordinance 22303 repeals Section 212.

Ordinance 23524 amends Section 30.

Ordinance 23538 repeals Section 31.

Ordinance 33869 amends Section 190.

Ordinance 24458 amends Sections 5 and 7.

Ordinance 24761 amends Sections 1, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 83, 84, 85, 86, 87, 88, 90, 91, 92, 94, 95, 96, 97, 98, 102, 107, 133, and 200.

Ordinance 24763 repeals Sections 22, 24, 82, 89, 93, 99, 100, 103, 104, and 105.

For index see page ——

DEFINITIONS

1 **Section 1.** Wherever used in this ordinance the following words and phrases shall be defined respectively as follows:

Alley	Any public thoroughfare sixteen feet or less in width.
Apartment house	A building containing separate housekeeping apartments for three or more families and having an entrance common to all or for two or more families over a story otherwise occupied.
Area	A space below the surface of the ground adjacent to and outside of a building and used in connection therewith.
Assembly hall	A room, other than a theater, used for public assemblages of one hundred or more persons.
Basement	A story, any part less than one-half the height of which is below the level of the abutting street or streets, or the general level of the ground.
Bearing wall	A wall upon which floor or roof construction rests.
Building	Any structure built for the support, shelter or enclosure of persons, animals or chattels; and when separated by division walls without openings, each portion so separated shall be deemed a separate building.
Cellar	A story, more than one-half the height of which is below the level of the abutting street or streets or of the general level of the ground.
Cement mortar	A mixture of not less than one part Portland cement with three parts sand.
Club house	A building used for the mutual entertainment, recreation and lodging of the members only of an organized club or society and their guests.

1

Curtain wall	A non-bearing wall built between columns and extending through two or more stories without intermediate support.
Detention building	A public or private hospital, reformatory, prison or jail.
Division wall	An interior wall dividing a building and extending from cellar or basement floor to and through the roof.
Dwelling	A building used as a residence only, but by not more than two families.
Dead load	The actual weight of all permanent construction in a building.
Established grade	The grade at the street curb as fixed by ordinance.
Factory	A building used for manufacturing articles by machinery.
Filler wall	A non-bearing wall between columns supported by girders at each floor.
Fireproof door	A door of wood completely covered with sheet metal with lock joints glazed with wire glass if glazed at all and set in a frame of metal, or wood covered with metal with locked joints.
Fireproof partition	A partition constructed wholly of brick, tile or concrete, or of a combination of hard plaster, metal lath, metal studs, gypsumite studs, plaster board, wire glass, metal frames and fireproof doors; provided that metal lath and studs shall be covered with at least ⅝ inch of plaster, and that no such partition shall be less than 1¾ inches thick.
Flat building	A building of two or more stories designed and used as a residence by more than two families, with separate entrances for each.
Garage	A building or any portion thereof in which an automobile propelled otherwise than by electricity is kept for any purpose other than display.
Grade	(See Established Grade and Natural Grade.)
Hard plaster	A wall plaster made of gypsum with which may be ground and mixed sand, fibre, asbestos, wood pulp or other suitable aggregate, or a plaster made of cement mortar and lime putty.
Height of a building	The vertical measurement from the established or natural grade to the highest ceiling of a building having a flat or mansard roof or to a point half the height from the roof plate to top of the highest ridge of a pitched roof. The height of buildings shall not exceed that hereinafter provided when measured at the center of any side.
Hotel	A building or any part thereof having more than twenty sleeping rooms designed and used for lodging transient guests.
Incombustible roofing	A roof covering of slate, sheet metal, tar and gravel, asbestos tile, clay tile or a commercial composition roofing approved by the Board of Appeals.
Incombustible partition	A partition of two-inch by four-inch studs or larger set twelve inches or less on centers, firestopped top and bottom and twice between and lathed and plastered both sides with metal lath or plaster-board and hard plaster or that form of partition known as the "Rabbitt" partition when 2¼ inches thick.

Inspector	The Superintendent of Buildings of the City of Seattle or any of his duly authorized assistants.
Interior lot	A lot with but one street frontage.
Lime and cement mortar	A mixture of not less than one part Portland cement with four parts lime mortar.
Live load	All loads to which a building is or may be subjected other than dead loads.
Lodging house	A building or any part thereof used for lodging purposes and having more than five and less than twenty-one sleeping rooms.
Lot line	The boundary line of a lot as shown by a recorded plat.
Masonry	Brick, stone, tile or terra cotta laid in mortar, or concrete.
Natural Grade	The undisturbed natural surface of the ground.
Office building	A building, the whole or larger part of which is used for office purposes and no part of which is used as sleeping rooms except for the janitor and his family.
Open lot	A lot bounded on all sides by street or alley lines.
Owner	Any person having title to, or control as guardian or trustee of, a building or property.
Party wall	A wall used or designed to be used in common by two buildings.
Person	One or more natural persons of either sex, associations, co-partnerships, or corporations, whether acting by themselves or by a servant, agent or employee; the singular number shall be held and construed to include the plural, and the masculine pronoun to include the feminine.
Public hall	A corridor or passageway used in common by all the occupants of a building.
Retaining wall	A wall subjected to lateral pressure.
Store building	A building used wholly or in part for display or sale of goods, wares or merchandise.
Story	That part of a building between two successive floors.
Street	A public thoroughfare more than sixteen feet wide.
Theater	A building containing a room designed and used for the entertainment of spectators and having a permanent stage upon which movable scenery and theatrical apparatus is employed.
Tenement house	A building occupied as a dwelling by four or more families living independently of one another and doing their cooking upon the premises, or by more than two families above the first story so living and cooking.
Through lot	A lot running from street to street, but not located on a street corner.
Veneer	An outer facing of brick, stone, concrete, tile or metal placed on a wall for decoration or protection.
Warehouse	A building used for the storage of goods, wares or merchandise.
Wire glass	Glass not less than one quarter inch thick containing wire fabric.
Workshop	A building or room used in which articles are manufactured by hand.

CLASS A

2

Section 2. A Class "A" building shall be held and construed to mean and include a building constructed according to the following specifications:

All material used in construction, except as hereinafter specified, shall be incombustible, fire and water proof material, and such building shall have a skeleton framework, if more than eight (8) stories in height, of steel or iron, or of reinforced concrete.

Floors and roofs

All floors and roofs shall be constructed of brick, terra cotta, or reinforced concrete.

Finish floors

Finish floors in halls, passageways and stairways shall be of marble, tiling or concrete, and shall be at least 2" thick above the top of the supporting beams. Finish floors in other portions of building may be of wood on sleepers embedded in concrete, with no air space beneath flooring.

Fireproofing

Every column in the outer wall shall have not less than 4½" of brick, stone, tile or concrete beyond its outer flanges. Where a facing of granite, marble or other stone which is subject to disintegration by heat is used, every beam and column shall be protected independently of such facing with not less than 2" of brick, tiling or concrete. All structural iron or steel before being fireproofed shall be cleaned of dirt and scale, and unless encased with concrete, shall be coated with an efficient preservative to prevent rust.

All structural iron or steel, including lugs and brackets, shall be entirely covered with 2" in thickness of concrete or tile, or 4" of brick, with no space next to the metal; the outer edges of lugs, brackets and similar supporting metal may project to within ⅞" of the surface of the fireproofing.

Terra cotta

The shells and webs of hollow tile blocks more than 6" thick, shall not be less than ¾" thick, and said blocks shall be thoroughly tied and anchored together.

Roofs

All roofs shall be covered with cement, concrete, tile, asphaltum and gravel, or other fireproof roofing.

Skylights

All skylights shall be of corrugated, prismatic or wire glass, not less than ¼" thick, set in a metal frame. Every skylight not glazed with wire glass shall be protected above and below by a wire screen supported on an iron frame at a distance of not less than 4" nor more than 6" from the glass, made of galvanized wire not smaller than No. 12, with a mesh not greater than 1¼".

Elevators

All elevators shall be enclosed with brick, tile or concrete, extending from the lowest basement or cellar floor to the underside of the first floor, and provided with self-acting, fireproof doors.

Trim

Finish and trimmings may be of wood, with no open space behind the same, except that no wood wainscoting shall be used in halls and stairways.

Wire glass

All glass in exterior openings facing upon an alley, open court, or upon private property, if within the first building district, shall be wire glass, set in metal sash and metal frames.

CLASS B

Section 5. A Class "B" building shall be held and construed to mean and include a building constructed according to the following specifications: 5

Walls The exterior walls shall be constructed of masonry, or of masonry and steel.

The walls of courts facing upon streets, alleys or private property shall be considered as exterior walls.

Columns All interior loads shall be carried to the foundations by columns and girders of iron or steel or of masonry.

Light courts The walls of interior light courts may be constructed of 2" matched lumber not to exceed 8" in width, free from loose knots or shakes and kiln dried, and put on vertical, and doubled, with broken joints. The outside shall be covered with tin or galvanized iron with lock joints or lapped 1½" or with metal lath or plaster board, plastered with cement mortar not less than ⅝" thick; or such walls may be constructed of 3" by 4" studs not more than 12" from center to center, firestopped at the floors with two courses of brick or 4" of concrete, and one-third and two-thirds the height of such story and at the ceiling with 2" by 4" lumber, and covered on both sides with metal lath or plaster board, and plastered with cement mortar not less than ⅝" thick.

Fireproofing All structural iron or steel shall be fireproofed with concrete or terra cotta 2" thick, or with brick 4" thick, with no space between same and the iron or steel.

Framing All floor, ceiling and roof joists may be of wood not less than 2⅝" thick.

All wood joists shall have at least one row of 2" by 3" bridging to each twelve feet of span or major fraction thereof; provided, however, that the bridging shall not be spaced more than twelve times the depth of the joists where the joists are less than 12" deep. All spaces between joists shall be blocked at the tops of all partitions with blocks of the thickness and depth of the joists.

Studs shall be not less than 2" by 4", and shall have 2" bridging the full width and placed every 6' 0" in height between the floor and ceiling, and a 2" sill and a 2" plate.

Floors Floors shall be composed of two layers of flooring, each layer not less than ⅞" thick, with two layers of 30-pound asbestos paper or one layer each of waterproof paper and 30-pound asbestos paper between, laid so as to break joints at least 2". All paper shall be turned up at least 2" where it comes in contact with the walls or any column, pipe, or flue passing through the floor.

Roofs All roofs shall be constructed of shiplap or matched lumber at least 2" thick, laid close and covered with tin, slate, galvanized iron, copper, tar and gravel or other approved incombustible roofing; provided, however, that roofs having a rise of 12" or more to the foot shall be constructed throughout of fireproof material.

Trim

Finish and trimmings may be of wood with no open space behind the same except that no wood wainscoting shall be used in halls and stairways.

Exterior woodwork

No woodwork shall be used on the exterior except window and door frames, doors and sash and storefronts; no such exterior woodwork shall project more than 4" at any point beyond the building line.

Under show windows

If openings to a basement occur under a storefront or show window, the show window of first story must be protected from fire at that point by fireproof construction.

Plastering

All partitions and ceilings shall be lathed with metal lath or plaster board and plastered not less than ½" thick.

Height

Class "B" buildings shall not exceed 100 feet in height.

CLASS C

6

Section 6. A Class "C" building shall be held and construed to mean and include a building constructed according to the following specifications:

Walls

The exterior walls shall be constructed of masonry or of masonry and steel and iron. The walls of exterior light courts or light wells open to streets or alleys, or to private property, shall be considered as exterior walls.

Light courts

The walls of interior light courts may be constructed of 2" matched lumber not more than 8" wide, free from loose knots or shakes, kiln dried and put on vertical in two thicknesses with broken joints, with the outside covered with tin or galvanized iron lapped 1½" or lock jointed, or with metal lath or plaster board, and ⅝" of cement plaster; or such walls may be constructed of 3"x4" studs, firestopped four times in the height of each story, and lathed with metal lath, or plaster board, and plastered with cement plaster on both sides not less than ⅝" thick.

Columns

All interior loads shall be carried to the foundations by columns of masonry, steel, iron, or of wood not less than 10" in its least dimensions, and by girders of steel, iron, or of wood not less than 10" in their least dimension.

Framing

Floor and roof joists, if of wood, shall be not less in breadth than 6".

Roofs

The roof sheathing shall be not less than 1¾" thick, of matched or splined lumber, and shall be covered with tin, slate, galvanized iron, copper, tar and gravel, or other approved incombustible roofing; provided, however, that roofs having a rise of 12" or more to the foot shall be constructed throughout of fireproof material.

Floors

Floors shall consist of an under floor matched of splined lumber, not more than 6" wide nor less than 2¼" thick, and a finish floor not less than ⅞" thick of dry matched lumber with two thicknesses of 30-pound asbestos paper, or one layer each of 30-pound asbestos and waterproof paper between. All floors shall be provided with gutters and scuppers for escape of water.

Partitions Partitions may be built of two thicknesses of 1⅝" matched lumber placed vertical with broken joints, or of ¾" matched lumber if one or more layers of 30-pound asbestos paper be placed between, or they may be built of studs not smaller than 2"x4", placed side by side, solid and well spiked. Partitions containing hollow spaces will not be allowed.

Plastering Ceilings and walls may be lathed and plastered, or covered with stamped metal or with wood ceiling only when same is applied directly to the surface of the same, so as to form no space between the plaster, stamped metal, or wood and the floor, partition or wall framing.

Exterior woodwork No woodwork shall be used on the exterior except window and door frames, doors, sash and storefronts; no such exterior woodwork shall project more than 4" at any point beyond the building line.

Under show windows If openings to a basement occur under a storefront or show window, the show window of first story must be protected from fire at that point by fireproof construction.

Trim Finishing and trimmings may be of wood with no open air space behind the same, except that no wood wainscoting shall be used in halls and stairways.

Height Class "C" buildings shall not exceed 80' 0" in height.

CLASS D

7

Section 7. A Class "D" building shall be held and construed to mean and include a building constructed according to the following specifications:

Walls The exterior walls shall be constructed of masonry or of masonry and steel.

The walls of courts facing upon streets, alleys or private property shall be considered as exterior walls.

Light courts The walls of interior light courts may be constructed of 2" matched lumber not more than 8" wide, free from loose knots or shakes, kiln dried and put on vertical in two thicknesses with broken joints, with the outside covered with tin or galvanized iron lapped 1½" or lock jointed, or with metal lath or plaster board, and ⅝" of cement plaster; or such walls may be constructed of 3"x4" studs, firestopped four time in the height of each story, and lathed with metal lath, or plaster board, and plastered with cement plaster on both sides not less than ⅝" thick.

Bearing partitions Interior loads above the first floor may be carried on partitions.

Framing Floor joists shall not be less than 1⅝" thick.

Partitions shall be constructed of not less than 2"x4" studding, set not more than 16" from center to center; provided, that in bearing partitions carrying more than the roof and one floor, 3"x4" or 2"x6" studding shall be used. All stud partitions shall have 2" bridging the full width and placed every 6' 0" in height between the floor and ceiling, and a 2" sill and a 2" plate.

Plastering All partitions and ceilings shall be lathed and plastered with hard plaster at least ⅝" thick, and

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all basement ceilings, partitions adjoining public halls, passages, stairways, stair soffits, and hall ceilings, shall be lathed throughout with metal lath or plaster board.

Floors Floors shall be constructed of at least two thicknesses of flooring.

Roofs Roof joists shall be tightly boarded with matched sheathing and covered with incombustible roofing.

Height Class "D" buildings shall not exceed 60′ in height.

CLASS E

(See Sec. 106)

8

Section 8. A Class "E" building shall be held and construed to mean and include a building constructed according to the following specifications:

The walls and partitions may be of wood.

Framing Bearing walls and partitions shall be of not less than 2″x4″ studs, and if carrying more than one floor and the roof, not less than 3″x4″ or 2″x6″ studs, and in no case shall studs be placed more than 16″ on centers. Solid bridging not less than 2″ thick and the full width of the studding, shall be cut in between the studding at each floor and not more than six feet in height apart, and bridging shall be cut in between the studding at all ceilings and just below the ceiling joists where the same are connected to the rafters. Non-bearing partitions may be constructed of 2″x3″ studding, set flat, and spaced as required for bearing partitions.

Floor and roof joists shall be at least 1⅝″ thick, and shall have solid bridging not less than 2″ thick the full width of the joists cut in between the joists, with close fitting joints over all partitions, and shall have at least one row of 1″x3″ cross-bridging to every twelve feet of span or major fraction thereof; provided, however, that where joists are less than 12″ deep, the space between the bridging and between the bridging and walls shall not exceed twelve times the depth of the joists; and provided, further, that when the live load is more than seventy-five pounds to the square foot, the cross-bridging shall be of 2″x3″ material. Mortar shall be placed around all pipes or flues at the floor and ceiling line in such a manner as will completely fill the opening and at least 2″ thick.

Light shafts The walls of all light shafts less than ten feet across in any direction shall be covered with metal lath or plaster board and hard plaster not less than ⅝″ thick, or with sheet metal with lock joints or lapped 1½″.

Mixed construction Buildings having the upper story or stories of wood construction, or having wood gabled or hipped roofs, and the lower stories constructed with masonry walls, shall be considered as Class "E" buildings.

Veneered Buildings, any portion of the exterior wall of which is of wood construction veneered with masonry, shall be considered as a Class "E" building.

Height No masonry veneer on wood framing shall exceed 32 feet in height.

Class "E" buildings shall not exceed 40′ 0″ in height.

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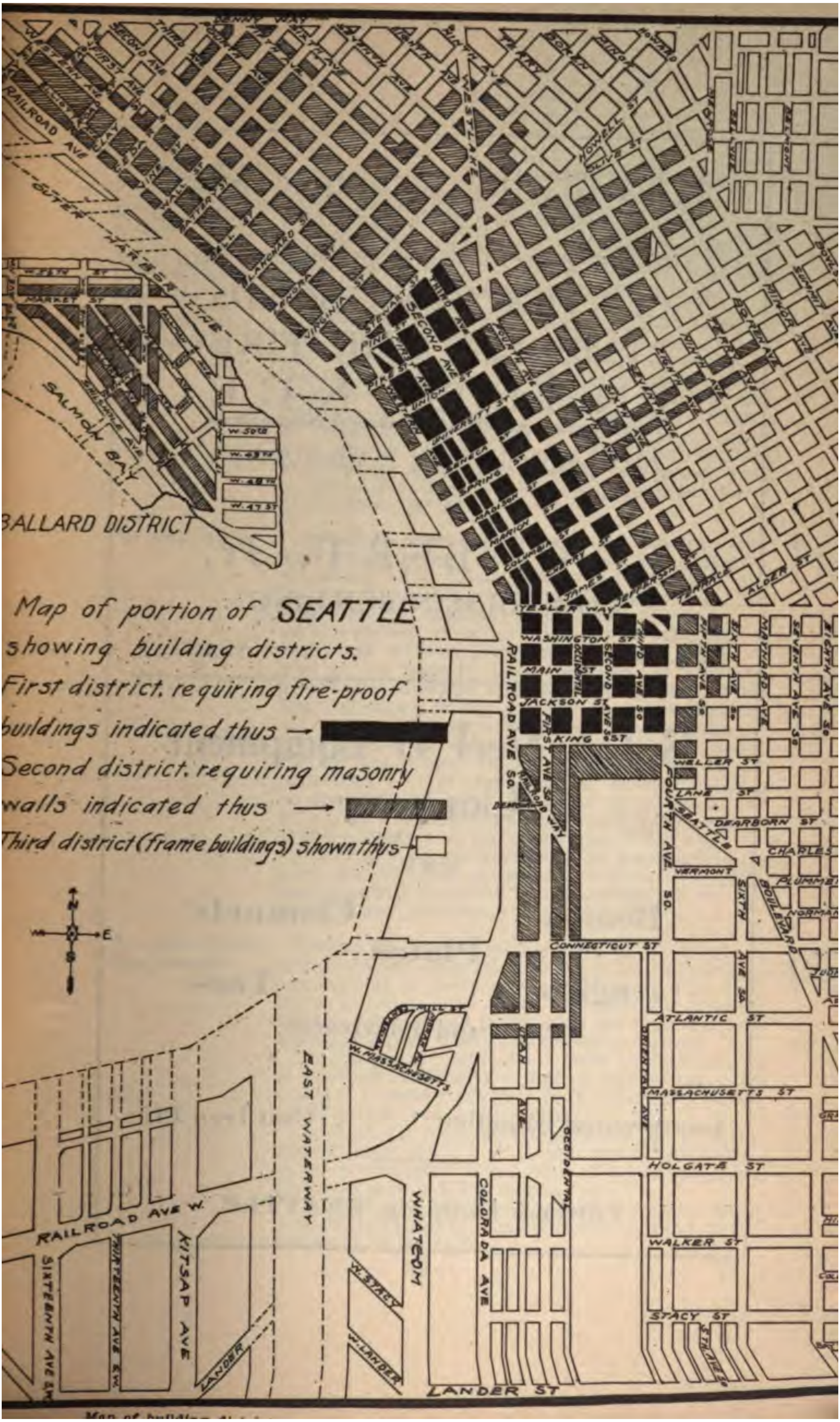

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POWERS OF SUPT. OF BUILDINGS

General

13 **Section 13.** The Superintendent of Buildings shall have charge of and exercise general supervision over all buildings, and it shall be his duty to enforce the provisions of this ordinance, and, when necessary to such enforcement, to institute proceedings in a court of competent jurisdiction for violation thereof.

To enter all buildings

It shall be unlawful for any person to interfere with, prevent or seek to prevent the inspection of any building at any time by the Superintendent of Buildings or his authorized representatives; provided, however, that before entering occupied private dwellings or apartments for the purpose of making an inspection, the consent of the occupant thereof shall first be secured or twenty-four hours' written notice of his intention to so enter and inspect shall be served upon such occupant by the Superintendent of Buildings.

To stop work

14 **Section 14.** The Superintendent of Buildings shall have authority and power to direct the immediate suspension of all or any portion of the work on any building in process of erection, alteration, repair or demolition, by attaching a notice to that effect on such premises, whenever it be found by him that such work is being performed without a permit issued in due form by the Department of Buildings, or that the drawings and specifications bearing the approval stamp of the Department of Buildings are not on the premises and available for examination by the inspector, or that such suspension is necessary to the proper inspection of work previously performed, or that such erection, alteration, repair or demolition is being conducted in a manner, or with materials not in compliance with the provisions of this ordinance or the permit issued therefor.

Nothing herein contained shall be construed to require that an order to suspend work shall be given as a condition precedent to prosecution for the violation of any provision of this ordinance.

To order buildings vacated

15 **Section 15.** The Superintendent of Buildings is authorized and empowered to direct and require that any building or portion thereof be vacated by posting a notice to that effect conspicuously thereon whenever it be found by him that the following conditions or any of them exist thereat or therein:

(a) That such building has been erected, altered or repaired subsequent to the passage of this ordinance in a manner contrary to the provisions hereof or the permit issued hereunder.

(b) That the construction, arrangement or equipment of such building or portion thereof is contrary to the provisions of this ordinance for buildings occupied as such building is occupied.

(c) That such building is unsafe to human life or to property from any cause whatever or in imminent danger of so becoming.

(d) That such building is not provided to the extent and in the manner provided by this ordinance with efficient and sufficient means of egress in case of fire or of fire protective and fire extinguishing apparatus or of light and ventilation.

Each day a separate offense

Section 16. Every day that any person shall continue to occupy premises after the issuance and posting of a notice by the Superintendent of Buildings directing their vacation shall be deemed a separate offense. 16

Permit required

Section 17. It shall be unlawful for any person to commence or to proceed to erect, alter, repair, raise, add to, remove or demolish any building or part thereof without obtaining and having a permit from the Superintendent of Buildings therefor or without conspicuously posting on the premises the permit placard furnished by the Superintendent of Buildings, or to fail or neglect to comply with the provisions of this ordinance and the permit issued thereunder. 17

Unlawful to disturb notices

Section 18. It shall beunlawful for any person to remove, mutilate, destroy or conceal any notice issued and posted by the Superintendent of Buildings pursuant to the provisions of this ordinance. 18

Application for permit

Section 19. Prior to the issuance of any permit hereunder it shall be required that application be made therefor in writing on forms provided for that purpose by the Superintendent of Buildings, which said application shall be signed by the owner or lessee of the premises, or by some person authorized to represent the owner or the lessee. Any person applying for a permit as lessee or as agent for a lessee may be required to produce evidence of his authority to do the work for which permit is applied. 19

Drawings required

With such application there shall be filed such blue-printed or otherwise printed drawings and printed or typewritten specifications in duplicate as will fully and definitely describe the extent and nature of the work for which a permit is desired, and an application accompanied by drawings which are in the judgment of the Superintendent of Buildings incomplete, indefinite, unintelligible or for work not in compliance with the provisions of this ordinance shall be rejected.

Drawings when not required

In the case of minor repairs or alterations or small one-story buildings, or in case the information conveyed by the written application is complete, the filing of drawings and specifications may be waived in the discretion of the Superintendent of Buildings.

Correction sheet

It shall be the duty of the Superintendent of Buildings, if upon examination he shall find that the application, plans or specifications contemplate work not in accordance with the ordinances of the City of Seattle to indicate such deviations in writing on a "correction sheet" and to return the drawings and specifications with such "correction sheet" to the applicant, and no permit shall issue until such drawings and specifications and the application have been corrected accordingly.

Approval of drawings

If upon examination it be found that the application and the drawings and specifications accompanying the same are in compliance with ordinance requirements, the said drawings and specifications shall be stamped "Approved" and so marked that they may be readily identified thereafter and one set placed on file in the office of the Superintendent of Buildings; the other set shall be returned to the applicant, together with a permit to proceed with the work contemplated and a permit placard, which the applicant shall be required to post conspicuously on the premises where the work is being done.

Life of permit

The permit issued hereunder shall be valid only for the number of days stated therein, and in no case for a longer period than one year. The Superintendent of Buildings shall be authorized and empowered to extend the time for which a permit is issued upon application being made for such extension before its expiration.

Permit may be revoked

The Superintendent of Buildings is authorized to revoke any permit issued hereunder if it be found that the work thereunder is being performed contrary to its provisions or conditions or the city ordinances.

Changes after permit unlawful

20

Section 20. It shall be unlawful to change the plans or specifications after the same have been stamped approved by the Department of Buildings and a permit has been issued, or to proceed with any work of building construction, alteration or repair in a manner not in accordance with the drawings and specifications as approved or the terms of the permit as issued without first obtaining permission in writing to make such change from the Superintendent of Buildings. The issuance of a permit or the approval of drawings and specifications shall in no case be construed or taken as an adoption by the Department of Buildings of manifest errors or of violations of this ordinance if discovered in such plans or specifications at any subsequent time.

Permit for change of occupancy

21

Section 21. It shall be unlawful to change the use or occupancy of any building or part thereof without there be first issued a permit therefor by the Superintendent of Buildings.

Inspection prior to change of occupancy
(See Sec. 23)

It shall be the duty of the Superintendent of Buildings prior to the issuance of such permit for change of use or occupancy to cause the premises to be inspected and to withhold the issuance of said permit if it be found as the result of such inspection that the construction, arrangement or equipment of said premises is not in all respects in conformity with the requirements of this ordinance for buildings used and occupied as in the manner contemplated by the application for such permit, and the Superintendent of Buildings shall issue a statement in writing when so requested of the changes of construction or arrangement or of the equipment required to be made or furnished as a condition precedent to the issuance of a permit to change such use or occupancy.

FEES

Section 23. Fees for the issuance of permits for erection of new buildings, or for additional stories on existing buildings shall be paid at the rate of 15 cents per 100 square feet of superficial area for the first story, and 10 cents per 100 square feet of superficial area for each story additional to the first story. 23

The fees for permits for alterations or repairs shall be fixed by the Superintendent of Buildings in proportion to the cost of the work as compared with new construction of like character.

The minimum fee for the issuance of a permit shall be 50 cents.

The fee for examination of buildings for the purpose of determining whether alterations are required for a change of occupancy shall be one dollar.

If any person shall begin the construction, alteration, repair, removal or demolition of any building without first taking out a permit therefor, he shall, when subsequently taking out such permit, be required to pay double the fees hereinabove provided, and shall be subject to all the penal provisions of this ordinance.

1st District, Class A required

Section 25. All buildings hereafter constructed within the First Building District, except as otherwise in this ordinance provided, shall be Class "A" buildings. 25

2d District, class of buildings required

Section 26. All buildings hereafter constructed within the Second Building District, except as otherwise in this ordinance provided, shall be Class "A," "B," "C" or "D" buildings. 26

Exceptions on waterfront

Section 27. Buildings on the waterfront resting on pile foundations and subject to swaying from the action of tides, waves, or vessels, shall not be required to be lathed and plastered or have masonry walls, flues or chimneys, but when such buildings have smoke flues, such flues shall be of metal, made double with 1″ ventilating space. 27

3d District requirements

Section 28. All buildings hereafter constructed within the Third Building District, except as otherwise in this ordinance provided, shall be Class "A," "B," "C," "D" or "E" buildings; provided, however, that the roofs of all buildings within three blocks of the Second Building District, except dwellings having less than thirteen rooms above the lowest street or alley grade, and located at least 10′ 0″ from all property lines, shall be covered with incombustible roofing. 28

Ordinance to have general application

Not retroactive

29 **Section 29.** The provisions of this ordinance relating to the construction, arrangement and equipment of buildings shall be held to apply to all buildings and parts of buildings hereafter constructed, and shall also be held to apply to all reconstruction, rearrangement, alteration, addition and installation of equipment hereafter made of, to or in any building or part of building heretofore or hereafter constructed, except as otherwise in this ordinance specifically provided; provided, however, that nothing in this ordinance contained shall be construed as requiring buildings heretofore constructed to be reconstructed, rearranged, altered or provided with equipment unless specifically required by the terms of this ordinance.

Height limits

30 **Section 30.** Buildings shall not exceed the following heights, respectively.

Class.	Height in feet.
"A"	No limit
"B"	100
"C"	80
"D"	60
"E"	40

No roof appendage on a Class "E" building, except on a building occupied as a church, shall extend more than 15 feet above the roof, and in no case over 55 feet above the grade, provided, however, that church spires, shot towers, water towers, grain elevators and smoke stacks may exceed the above limits, but in no case shall exceed 200 feet in height, and shall be so constructed and anchored to a masonry foundation as to withstand a lateral wind pressure of thirty pounds to the square foot.

Height in proportion to base

32 **Section 32.** No building, except a church spire, shot tower, water tower, grain elevator or smoke stack, shall be of any greater height in proportion to its least dimension at the base than as follows:

Buildings of Class "A," five times; Class "B" or "C," three times; Class "D," two and one-half times; Class "E," one and three-fourths times, and the same proportions shall apply to wings of buildings whose length exceeds two and one-half times their width, provided no building shall exceed the maximum height established for its respective class.

Excavations responsible for adjacent property

33 **Section 33.** Any person excavating for the purpose of laying the foundation of any building, or for any other purpose whatever, shall protect and support all adjoining land, buildings, streets, alleys and sidewalks from damage, by underpining, cribbing or shoring or such other device as will prevent all settling, cracking or damage whatsoever.

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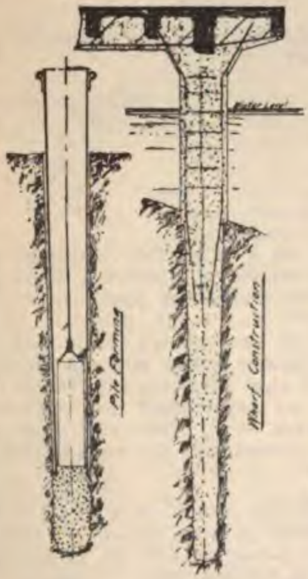

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C. H. KIEHL, Engineer
FRANK WATERHOUSE, Director

Concrete piles shall be made of concrete, consisting of one part cement, two parts clean sharp sand and four parts broken stone or clean washed gravel, no stone larger than will pass through a ¾" ring. The pile to be made tapering in form and in immediate contact with the surrounding earth throughout its entire depth. The concrete being rammed into place as it is deposited in the earth in sections not exceeding 2′ 0″ of pile length.

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Seattle

MAIN 9537

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Excavations beside footings

34 **Section 34.** Excavations in any building for the foundations of any machinery or for any cistern or pit of any kind, or for a tunnel or sewer, or other pipe line running parallel with a foundation wall or the side of any supporting pier, shall not be cut below the bottom of the footings of such wall or pier when such excavation extends within 1′ 0″ of the angle of repose or natural slope of the foundation soil underneath such footings. The excavations for the foundation of any vibratory machinery, engine or dynamo shall not be made within 1′ 0″ of the footings of any wall or pier.

Piles

35 **Section 35.** Piles shall be driven to a firm and solid bearing, and the tops shall be cut off at an elevation to insure constant immersion of the piles and wood capping, if any. The piles shall be of sufficient number and so spaced as to equalize the loads and make a stable foundation for the proposed load; computing the load by Major Sander's formula for piles driven in soft ground, and by C. Shaler Smith's formula for piles reaching hardpan. The piles shall be capped with timber not less than 8″x 12″ in dimensions, or with concrete capping, enclosing the heads of the piles to a depth of not less than 6″. Where piles are spaced more than 3′ 0″ from center to center, metal reinforcements must be used in the concrete.

Foundations masonry buildings

36 **Section 36.** The foundations of masonry buildings shall rest upon base or footing courses. Footings of stone shall have the upper and lower surfaces of each approximately parallel, and the stones shall be close fitted and bedded solid. Footings of brick shall be of hard-burned brick, and shall not be reduced more than 2″ to each course. Footings of stone or concrete shall not be reduced more than 8″ to the foot in height, and all foundations shall rest upon solid ground or piling.

Foundations frame buildings

37 **Section 37.** When frame buildings are not more than two stories in height the foundation walls shall be brick 8″ thick, or other masonry walls of such proportionate thickness as provided by Section 40 of this ordinance, or masonry piers; all such walls and piers to be carried not less than 6″ above the surface of the highest ground within 2′ 0″ of the wall or pier; provided, that if a building is to be veneered with masonry the foundation must be a masonry wall of such proportionate thickness as provided by Section 40 hereof, on which the veneer shall rest. When the building is more than two stories in height, the foundation shall be a brick wall 12″ thick, or other masonry wall of such proportionate thickness as provided by Section 40 of this ordinance, and built up to the first floor joists.

Mud sills

Piles

One-story unfinished frame buildings not exceeding 400′ in area and open sheds not more than one story in height may have wood footings, and buildings erected over tide or shore lands may rest on pile foundations.

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ITY OF SEATTLE DEPARTMENT OF BUILDINGS

MASONRY WALLS

SECTION 39 TABULATED

THICKNESS OF BRICK WALLS

WHEN LESS THAN 40 FT. LONG BETWEEN CROSS WALLS

FOR DWELLINGS, APARTMENT HOUSES, HOTELS, FLAT BLDG'S LODGING HOUSES AND FOR ALL DIVISION AND NON-BEARING WALLS

MINIMUM THICKNESS IN INCHES								
	1 STORY BLD.	2 STORY "	3 STORY "	4 STORY "	5 STORY "	6 STORY "	7 STORY "	8 STORY "
8TH STORY								12
7TH "							12	12
6TH "						12	12	12
5TH "					12	12	12	16
4TH "				12	12	12	16	16
3RD "			12	12	12	16	16	16
2ND "		8	12	12	16	16	16	20
1ST "	8	12	12	16	16	16	20	20
BASEMENT	12	12	16	16	16	20	20	24

FOR ALL OTHER BUILDINGS

MINIMUM THICKNESS IN INCHES								
	1 STORY BLDGS	2 STORY "	3 STORY "	4 STORY "	5 STORY "	6 STORY "	7 STORY "	8 STORY "
8TH STORY								12
7TH "							12	16
6TH "						12	16	16
5TH "					12	16	16	16
4TH "				12	16	16	16	20
3RD "			12	16	16	16	20	20
2ND "		12	16	16	20	20	20	24
1ST "	12	16	16	20	20	20	24	24
BASEMENT	16	16	20	20	20	24	24	28

FOR WALLS 40 FT. TO 80 FT. LONG BETWEEN CROSS WALLS INCREASE THICKNESS IN ABOVE TABLES 4 INCHES

FOR WALLS 80 FT. TO 120 FT. LONG BETWEEN CROSS WALLS INCREASE THICKNESS IN ABOVE TABLE 8 INCHES

FOR WALLS OVER 120 FT. LONG BETWEEN CROSS WALLS INCREASE THICKNESS IN ABOVE TABLE 12 INCHES

IN LIEU OF THE ABOVE SPECIFIED INCREASE IN THICKNESS PILASTERS NOT OVER 20 FT. APART EQUAL IN WIDTH TO THE THICKNESS OF THE WALL AND PROJECTING TWICE THE INCREASE OTHERWISE REQUIRED MAY BE BUILT, PROVIDED THAT NO 12 INCH WALL SHALL BE BUILT BELOW THE 3RD STORY FROM THE TOP

THE MINIMUM HEIGHT OF ANY STORY SHALL BE 8 FEET NO WALL IN ANY STORY SHALL BE GREATER IN HEIGHT THAN 16 TIMES ITS THICKNESS

SECTION 40 TABULATED

THE RATIO OF THICKNESS OF OTHER MASONRY WALLS TO BRICK WALLS SHALL BE AS FOLLOWS

UNCOURSED RUBBLE	1.4
COURSED "	1.2
8" ASHLER BACKED BY BRICK	1.0
GRANITE ASHLER.	.75

CHUCKANUT ASHLER	.80
TENINO "	.875
CONCRETE ·1·3·5·	.875
REINFORCED CONCRETE	.75

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Ventilation when no basement

38 **Section 38.** Every building erected without cellar or basement shall have all sod and all soil containing organic matter beneath the same removed before the joists are laid and shall have in the external walls below the first floor level not less than four ventilators, not less than 5"x12" each, so placed as to insure cross currents of air, and no sill or floor joists shall be less than 6" above the ground.

MASONRY

Hard brick

41 **Section 41.** Hard burned brick, stone or concrete shall be used for all exterior walls and all interior and exterior piers below the surface of the ground, and hard burned brick, stone, concrete or terra cotta for all exterior walls exposed to the weather. All brick shall be well burned and well shaped.

Bond
(See Sec. 130)

The bond in brickwork shall be formed by laying one course of headers for every six courses of stretchers. If pressed brick facing is used, it must be bonded into the backing every nine courses or less if the courses coincide oftener. Bonds shall be made by solid headers or by blind headers or by means of galvanized metal anchors.

Wall facing

Where the facing of any wall is 4" or more in thickness, it shall not be considered in the thickness of the wall unless it is solidly bonded with the backing every 20". No facing less than 4" thick shall be counted in the thickness of the walls. In the case of piers faced with pressed brick, solid headers, bond stones or iron bond plates shall be used.

Anchorage

All stone or other facing of a wall shall be securely tied to the brick backing by means of metal clamps, or shall have alternate courses bonded at least 4" with the brickwork.

Pressed brick

Pressed brick must in all cases be so laid as to have a full bed of mortar under the entire surface. Exterior walls faced with stone shall have a backing of hard brick work laid in mortar composed of one part cement and three parts sand; but in no case shall the thickness of the stone and backing taken together be less than the thickness required for a brick wall of the same height.

Iron fronts

The backing of any iron front that is not wholly self sustaining shall be treated as an independent wall. If the iron is self sustaining then the party and division walls shall extend to meet the outer plate of the iron, and all the vacancies shall be filled with grout to insure complete separation of adjoining rooms.

Curtain walls, brick

42 **Section 42.** Curtain walls of brick, stone or tile shall not be less than 12" thick for sixty feet of the uppermost height thereof, or to the tier of floor beams nearest to that height, and they shall be increased 4" for every additional section of sixty feet, or to the tier of floor beams nearest to that height.

Curtain walls, concrete of reinforced concrete

Curtain walls of reinforced concrete shall be not less than 6″ thick for the upper two stories, 7″ thick for the next three lower stories, 8″ thick for the next four lower stories, and 9″ thick for all stories below the ninth story from the top, and shall, in the upper two stories, be reinforced with steel rods ¾″ in diameter, or of equivalent sectional area, set vertically, and spaced not more than 18″ apart, and steel rods ⅝″ in diameter, or of equivalent sectional area, set horizontally not to exceed 24″ apart, and tied to each vertical rod at each intersection, which reinforcement shall be increased in an arithmetical ratio of twice as much steel in the two stories next below the upper two stories, and three times as much steel in the two stories next below the upper four stories, and so on downward. Vertical rods shall be spliced together with iron wire. Horizontal rods shall be wired to the columns. Additional rods shall be set around openings, the verticals being wired to the nearest horizontal bars and the horizontal bars at the top and bottom of openings shall be wired to the nearest vertical rods.

Filler walls

43 **Section 43.** Filler walls shall not be less than 12″ thick above the ground or above the tier of beams nearest the ground, and thence downward the thickness of such walls shall increase in the ratio of 4″ to every 14 feet or part thereof; provided, however, that filler walls of reinforced concrete with both horizontal and vertical reinforcing sufficient to resist a lateral pressure either inward or outward of 30 pounds to the square foot, shall not be required to be more than 6″ thick, above the ground.

Wall chases

44 **Section 44.** Recesses and openings may be made in walls, provided the thickness of the backs of such recesses be not less than 8″. No continuous vertical recess of more than 4″ in depth shall be made in any 12″ wall; and no recess of any kind shall be made in any 8″ wall; and all such openings and recesses shall be filled with cement at each floor.

Hollow walls

45 **Section 45.** Hollow walls may be built, but all such walls shall be tied together with metal anchors placed not more than 3′ 0″ apart horizontally and 20″ apart vertically. If used as bearing walls the thickness shall be reckoned by the solid parts.

Corbelling for joists

46 **Section 46.** Where wooden floor joists are used on masonry walls, the walls shall be reduced at least 2″ above the bearing or corbelled out below the bearing at least 2″, the corbelling to be done in not less than four courses, or approved cast or wrought iron or steel stirrups on box anchors shall be built into the wall.

Fire walls

47 **Section 47.** All exterior and division masonry walls, including those facing upon courts and light shafts, shall be extended above the roof as fire walls at least 3′, except as hereinafter provided.

Buildings with roofs constructed as required in this ordinance for Class "A" buildings need not be provided with fire-walls. On street and alley lines the fire-walls need not extend more than 18" above the roof, or may be omitted when the top of the roof boards and roof joists are protected from fire for a distance of at least 5' from such street or alley lines by a coating of deafening mortar, or hollow or porous tile at least 2" thick.

Fire-walls shall not be less than 12" thick if built of brick, or of proportionate thickness if built of other masonry, except that where 8" walls are permitted in the top story of buildings and in buildings not over three stories high, the fire-walls may be not less than 8" thick.

Copings

All fire-walls shall be covered with weatherproof coping of metal, concrete, or granite or tiling set in cement mortar.

Masonry on wood

Section 48. No masonry wall shall rest upon or be supported by any wooden support, unless a masonry arch is turned above such support of sufficient strength to carry the wall; provided, that in one-story masonry buildings not more than 11' high in the clear, cornices and fire-walls may be carried on wooden lintels covered on the face and underside with galvanized iron, or furring and metal lath with cement plaster. **48**

Joist anchors

Section 49. All masonry walls shall be anchored to each tier of floor joists and girders at intervals of not more than 10' apart, with wrought iron anchors not less than ⅜" thick by 1½" wide, built into the walls, and not less than 4" from the opposite side of the wall, and anchored with ¾" round iron tees not less than 8" long, or wrought or cast iron washers not less than 4" in diameter, securely fastened to the end, and such anchors shall extend not less than 24" along the joist or girder and be turned down at least ¾" at right angles to the anchor and notched in but not fastened to the joist or girder with more than one eight-penny nail, and all lines of anchored joists and girders shall be securely fastened together from wall to wall with wrought iron straps, bolts or other means of equal strength with the anchors. **49**

Walls to be carried uniform height

Section 50. During the construction of a building no wall shall be carried to a greater height than one scaffold above any other connected wall of the same building, except by the approval of the Inspector, and in no event higher than one story. All walls of buildings shall be securely braced during construction. **50**

Wet brick, freezing weather

Section 51. All brick shall be wet at the time they are laid, and shall be laid with full joints, both vertically and horizontally, and in piers with shoved joints, and no brick shall be laid in freezing weather. **51**

C. W. KUCHER, Pres.-Mgr.
F. D. MOORE, Sec.-Treas.

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Bearing plates

52 **Section 52.** All posts, columns, girders, floor joists and structural parts resting on masonry and transmitting a greater load per square inch than allowed on masonry by this ordinance, shall be carried on stone, cast or wrought iron or steel bearing plates of sufficient size and thickness to distribute the load so as not to exceed the safe load per square inch on masonry allowed by this ordinance.

Post bearings

All posts or columns must be wrought to a true bearing at right angles with their axes and set plumb without wedging.

Iron columns

All iron columns shall have straight cores.

Granite columns

No granite or marble column shall carry a wall exceeding one story in height.

FRAMING

Bearing partitions

53 **Section 53.** Bearing partitions of wood shall rest on walls or girders, or be placed directly over other bearing partitions, or the floor joists of the floor below shall be of such size as will support the concentrated load.

Joist bearings

54 **Section 54.** Floor joists shall have a bearing of at least 4″ at each end, and the ends of all floor joists and rafters entering a masonry wall shall be cut on a splay of 1″ less than the depth of the recess, and their ends, tops and sides shall be left ½″ clear of all mortar or masonry, except firestops, and not less than 4″ of masonry shall be left between the recesses, or rafters or floor joists entering a wall from opposite sides.

Fire stops

On all plastered masonry walls where furring is used the spaces between the furring shall have firestops not less than 2″ deep at every floor and ceiling and midway between.

Cutting of joists

55 **Section 55.** No wooden girder, joist or rafter shall be cut or bored at a depth of more than 2″ from the top, or in case it is more than 10″ deep at a depth of more than one-fifth its depth from the top, or at a point more than three times its depth from the end, without being doubled and securely spiked or bolted sufficiently to restore its original strength; provided, however, that it may be bored in its middle third by a bore not more than one-eighth its depth in diameter.

Cutting of studs and posts

No stud, post or plate in a bearing partition shall be cut into in any direction, except that plates may be cut to a depth of not to exceed one-third their width and not exceeding one-fourth of their area between supporting studs for the passage of water, gas or other pipes, electrical wires or tubing, and that studs may be bored near their centers for electrical work if the diameter of the bore does not exceed one-fifth the width of the studs and the bores are not less than 12″ from center to center.

Basement ceilings

56 **Section 56.** All cellar and basement ceilings, except in Class "A" or "C" buildings and in dwellings, shall be lathed and plastered or covered with metal with lock joints or lapped 2″, and no wood ceilings shall be used in any cellar or basement, except as hereinbefore provided in Class "C" buildings.

Post caps

Section 57. All buildings two stories or more in height and having wood posts and girders, shall have on the top of each post a cast or wrought iron or steel cap so constructed as to form a base for the next post above and a bearing for the girder, and of such size and thickness that the load will not exceed 400 pounds per square inch of the bearing surface of the girder. 57

Built-up girders

All girders built up of more than one piece shall be bolted together by ⅝" bolts placed not more than four times the depth of the girders apart, and no space shall be left between the members unless such space is filled solid the full width of the opening, and not less than 2" thick from the under side, to prevent fire burning between the members.

Headers and trimmers

Section 58. All floor joists supporting header or trimmer beams shall be increased in size sufficiently to carry the extra load transmitted to them. 58

All header or trimmer beams more than 4' in length in buildings designed to carry a live load of more than 60 pounds to the square foot, when not resting on a wall or post, shall be hung in steel or wrought iron hangers of suitable strength.

All tail beams more than 8' in length or required to carry a load of 1,600 pounds or more, shall be hung as required for headers or trimmers.

Plaster to floor

Section 59. Lath and plaster shall extend to the floor and to stair carriages in all cases. 59

Metal shaft lining

Section 60. All clothes chutes, dumb waiters, wire shafts, pipe shafts and other enclosed spaces extending from one story to another, shall be built of metal or lined on the inside with sheet metal with lock joints or lapped 1½", and shall have a tight-fitting metal lined covering or door over each opening, and no woodwork of any such chute or shaft shall be within less than 2" of any masonry smoke flue or within less than 12" of any metal smoke flue. 60

Scuttles and ladders

Section 61. All buildings two or more stories in height having roofs with a rise of not exceeding 5" to the foot shall have, in every portion thereof between division walls at least one scuttle not less than 2'x3' in dimensions, with a stationary ladder leading thereto from the top floor, or at least one stairway leading from the top floor to a pent house, having a door not less than 2'x6' in dimensions, which stairway, if enclosed, shall be provided with substantial handrail, and if not enclosed shall be provided with substantial guards or handrails on both sides, and all ladders and stairways shall be of such material as allowed in the class of buildings in which they are constructed. 61

All ladders and stairways shall lead out of a public hall if the top floor is divided into rooms.

All scuttle covers, pent houses and doors on buildings having incombustible roofs shall be of incombustible roofing or covered with tin or galvanized iron, and such covers and doors shall be fastened on the inside only, with a movable hook or bolt, which can be withdrawn without the use of a key.

Inflammables on roofs

62 **Section 62.** It shall be unlawful for any person to leave uncovered or in any way exposed, any tar, tar paper, resin, felt or woodwork on any roof in the First or Second districts.

Division of attics

63 **Section 63.** All attics or unfinished spaces between the ceiling of the top story and the rafters of any building shall be divided into compartments or rooms, having a floor area of not to exceed 2,500 square feet, by partitions of dry shiplap or matched lumber not less than ⅞" thick and not more than 6" in width with no loose knots and made double with broken joints, or by fireproof or incombustible stud partitions, and each of such compartments shall be connected with all adjoining compartments, except those separated by division walls, by doors not less than 2' in their smallest dimensions of the same material as the partition, which doors shall be kept closed and so fastened as to be opened from either side without the use of a key.

Smoke vents

64 **Section 64.** Every building more than two stories in height, except dwellings, shall be provided with ventilators having a clear opening above the roof equal to one-fourth of one per cent. of the ground area of the building, for the escape of smoke in case of fire, which ventilators shall be located over an elevator, stairway or main corridor, and shall be provided and connected with an efficient device whereby they can be readily opened and closed from every floor of the building.

CHIMNEYS

65 **Section 65.** All chimneys and all vent flues over ranges shall be built of good brick, stone, or concrete blocks laid in mortar with flush struck joints, or of concrete not less than 4" thick, except that terra cotta flues may be used in unfinished one-story buildings.

Flue linings

In all buildings in the First and Second Building Districts, and in hotels, lodging houses, apartment houses and flat buildings in all districts, all chimneys and all vent flues over ranges shall have terra cotta flue linings not less than 1" thick, or shall have walls not less than 8" thick.

Plastering

All interior chimneys not lined with terra cotta shall be plastered on the outside, except the portion above the roof. The inside of no chimney or flue shall be plastered.

Sectional area

No chimney flue shall have less than one square inch of sectional area to each 1½ square inches of sectional area of the smoke pipes entering it.

No brackets

All chimneys not built from the ground shall be supported directly from floor timbers or from the ground by posts not less than 3½" in their least dimension.

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Resolved, That chimney blocks made of Portland cement, sand and crush vitrified clinkers in the proportion of not less than one part of cement to eight parts of the above mentioned aggregate, and the blocks made with a three-inch shell or thicker, with rabbeted horizontal joint and no vertical joints, and so made as to interlock if chimney has more than one flue, and subject to the ordinance provisions as to offset, distance from framing and exterior plastering, shall be considered equivalent to four-inch brick chimney flues when used for service to stoves, ranges and fireplaces, and for service from house furnaces when twelve feet or more from the point of entrance of smokepipe from furnace; provided, however, that no such concrete chimney block shall be used with a flue larger than eight inches by twelve inches.

BOARD OF APPEALS {
CHAS. H. BEBB, Chairman
J. C. REDWARD
GEORGE TENNANT

Chimneys resting on wood shall have at least three courses of solid brickwork at the bottom.

Joist trimming All floor beams, joists and headers shall be kept at least 1½" clear of chimneys, and the space between the wood and chimneys shall be filled solid with gauged mortar resting on a course of brick set out 1" to hold it in place, or the space shall be covered with metal to prevent the passage of fire through the floor or ceiling.

Thimbles Thimbles for smoke pipes shall be not less than 6" from any plastered partition or 12" from any wood partition, or ceiling, or floor. Brick shall be corbelled out to the face of the furring at least 4" around the thimble; provided, however, that the brick may be left ½" back from the face of the furring if sheet iron or metal lath with a hole cut 1½" larger than the thimble be put on the furring to cover the brickwork and prevent cracking of plaster.

Racking In racking over flues or chimneys, no course of brick shall be offset more than ½", and no racking shall be made so that the overhang shall be more than one-third of the base of the chimney.

Nails No nails shall be driven into any chimney.

Bracing A chimney exceeding in height above the roof 5 times its least dimension, shall, unless laid in cement mortar or built of reinforced concrete, be braced with wrought-iron or steel in a manner satisfactory to the Department of Buildings.

Chimneys laid in cement mortar, or of reinforced concrete, when carried to such a height that bracing is deemed advisable by the Department of Buildings, shall be braced as mentioned above.

Height of Except on Class "A" buildings, or in case of chimneys penetrating the ridge of a roof, the tops of all chimneys shall be at least 2' from any roof surface measured in a vertical direction and 12' measured in any other direction.

Substantially guyed sheet metal extensions may be used to secure the height herein required if placed on a chimney of masonry 5' or more in height above a roof, provided such metal extension is galvanized or well painted with asphaltum.

(See resolution of the Board of Appeals relative to concrete chimney blocks on opposite page.)

Boiler flues **Section 66.** All brick flues for boilers, except in private residences and those not exceeding 15 horsepower and for furnaces and ovens, shall be 8" in thickness to the height of 25' above the smoke inlet. All brick flues for boilers exceeding 15 horsepower shall be not less than 12" in thickness to the height of 25' above the smoke inlet, or lined with terra cotta with joints well cemented, and walls not less than 8" thick. 66

Metal smoke stacks

Section 67. All iron smoke stacks from boiler furnaces shall extend 15′ above the highest point of the roof of any building within 50′ of such smoke stack, and shall, when wood is used for fuel, and the draft is either a forced or direct natural draft, be provided with spark arrestors having not more than ¼″ mesh. 67

Smoke stacks less than 12″ in diameter shall not be nearer than 16″ to any woodwork, and if more than 12″ in diameter shall have an additional distance from all woodwork of ¼″ for each additional inch in the diameter of the stack up to 36″.

Iron cupola chimneys of foundries shall extend at least 10′ above the highest point of any roof within 50′ of such cupola, and shall not be placed within 2′ of any woodwork. Iron or steel smoke stacks from boiler furnaces or coffee roasters, where passing through any floor, ceiling or roof, shall be provided with a metal jacket 12″ from the stack and supported by it, and with an additional metal jacket 18″ from the stack and secured to the floor, ceiling or roof, which jackets shall extend not less than 12″ below and 12″ above each such floor, ceiling or roof, and be provided with a metal umbrella covering at the roof opening not less than 12″ above the top of the jackets.

Flues through walls

Section 68. No iron, terra cotta or earthen pipe smoke flue shall be so erected as to project through an exterior wall or window, or through the roof of any skylight, except as hereinbefore provided. 68

Concealed smoke pipes

Section 69. Whenever a smoke pipe passes through a hollow wall or a clothes closet, or any concealed space between the face of a partition in any room and the chimney it shall be of galvanized iron with riveted joints covered with five thicknesses of not less than 1″ in thickness of cell corrugated asbestos paper and an outer iron pipe to protect the asbestos, and shall be securely built into the chimney. 69

Flues in party walls

Section 70. All flues in party walls shall be separated by at least 4″ of masonry throughout the entire length, and shall have openings for smoke pipes upon one side only. 70

Large chimneys

Section 71. All chimneys having 400 or more square inches of sectional area, shall be lined with fire brick laid in fire clay at least 2′ below and 6′ above the entrance of any smoke pipe. 71

Smoke pipes, wood partitions

Section 72. In all cases where smoke pipes pass through stud or wood partitions of any kind, whether the same be plastered or not, they shall be surrounded by masonry not less than 4″ in thickness and extending through the partition, or by a solid coat of plaster of paris 4″ thick, or by a double metal collar with air chamber not less than 3″ and perforated for the passage of air, and when such partition is of uncovered wood it shall be further protected by a sheet of metal on each side five times the diameter of the pipe across. 72

Hearths

Section 73. All hearths for fireplaces, whether used for wood, coal or gas, shall rest on trimmer arches of masonry, or tile, and all wood floor construction shall be removed for at least 18" from the face of the finished fireplace and for at least 15" on either side. 73

Fireplaces

The back and jambs of all fireplaces shall be not less than 8" thick. After the hearth arch is set the wooden false arch shall be removed.

Furnace smoke pipes

Section 74. In all cases where hot water, steam, hot air or other furnaces are used for heating a building, or any portion thereof, no furnace smoke pipe shall run within less than 8" below any wooden joists or below any ceiling of wood or of wooden lath and plaster, or within less than 18" thereof, unless such joists or ceiling shall be protected by a shield of tin plate suspended above such smoke pipe and not less than 1½" or more than 2" from such ceiling or joists, which shield shall have a width of not less than five times the diameter of such smoke pipe. 74

Registers

All pipes and register boxes used for the distribution of hot air from furnaces shall, when the air is heated directly from a fire box, be made of bright tin, and double, with not less than ½" space between the inner and outer pipes, or of bright tin covered with asbestos paper weighing not less than 2½ ounces to the square foot, and shall have double reamed joints, and shall not be soldered.

Where the air is heated with hot water or steam, other sheet metals may be used for pipes and register boxes.

All hot air registers placed in any floor or wall, and heating ducts or pipes, shall be provided with 1-16" thick asbestos paper or other non-conductor between all metal and woodwork.

When a register box is placed in the floor over a portable furnace, the open space on all sides of said box shall be at least 3" wide. When only one register is connected with the furnace such register shall have no valve.

Hot air pipes

Hot air pipes shall be secured in place by clips riveted to the pipe and nailed to the woodwork, but no nail or tack shall be driven through the pipe of any hot air furnace.

Brick set furnaces and ranges

Section 75. The tops of all furnaces set in brick shall be covered with brick, slate, galvanized iron or tin, supported by iron bars and so constructed as to be perfectly tight. No range, candy furnace or kettle set in brick shall be built against a brick wall with any combustible material between it and the wall, or upon said wall for a height of 2' above such range, furnace or kettle. 75

Hotel ranges

All wood lath and plaster, or wood ceilings or joists over ranges in hotels, restaurants or boarding houses, shall be guarded by metal hoods placed at least 12" below the ceilings or joists, and any ventilating pipe connected with a hood over such range shall be 12"

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from any wood lath and plaster or any combustible material, or said pipes shall be covered with 1" thickness of asbestos paper on wire mesh, and no such pipe shall pass through any floor or partition. Such metal hoods shall have all joints and seams riveted or interlocked, and shall have a ventilating pipe of metal with riveted or interlocked joints venting into an independent flue, when possible, and at least 12" from any unprotected woodwork, unless provided with double collar of metal with a 3" air space.

Hotel ranges, etc., on wooden floors

76 **Section 76.** All steel ranges in hotels or restaurants, and all steam boilers not exceeding 10 horse power, furnaces, ovens, coffee roasters and other structures in which fires are maintained, when set over a wooden floor, shall be set on 1½" "T" irons, resting on one solid layer of brick laid flat and with cement mortar, or on 3" of concrete, and no such structure shall be set within 12" of any unprotected woodwork, and the floor in front of fire boxes shall be protected with a sheet of metal not less than 3' square.

Brick ranges shall rest on a foundation of not less than three layers of hollow brick set in cement mortar, and if built against a wooden or plastered frame partition or wall, shall have the back of the range 12" thick to the top of the range, and extended 4" thick at least 2' above the top of the range and shall have the floor in front of the fire box protected with sheet metal not less than 3' square.

Shelves over ranges

All shelves over ranges shall be of metal on metal brackets. All heating stoves shall be at least 2' from any unprotected woodwork, wood lath and plaster or other combustible material, or any such combustible material within 2' of the stove shall be protected with a sheet metal shield leaving at least 1" of air space between the shield and the exposed woodwork, and such heating stove shall rest upon a metal board extending not less than 1' in front of the stove.

Gas stoves

77 **Section 77.** All burners on gas stoves, plates or other gas heated apparatus shall be at least 4" from any woodwork, and all woodwork within 6" shall be protected by sheet metal, backed by asbestos paper 1-16" thick, and securely attached to the exposed wood, or by 2" of brick or tile.

Protection of woodwork

All woodwork subject to spattering grease shall be covered with metal, and all gas connections shall be of solid iron pipe or flexible metallic tubing. All gas heated candy kettles shall have gas connections of solid pipe, and the burners shall be not less than 10" from any woodwork. The kettle shall rest upon 3-16" sheet iron if over wooden floor.

All kettles using coal or coke fuel must be at least 3' from unprotected woodwork, and must be set on incombustible floor or on wood flooring protected by heavy sheet iron extending 12" beyond the sides and 2' in front of the kettle, and the kettle shall rest upon two layers of hollow brick.

Steam boilers, power

78 **Section 78.** All steam boilers exceeding 10 horsepower, if placed upon any floor above the cellar, shall be set upon metal beams and masonry arches, and such beams shall be built into the walls. All steam boilers shall be provided with a tank of sufficient capacity to hold a supply of water for such boiler for at least six hours.

Boiler enclosure

All boiler rooms in any building, other than a dwelling, shall be enclosed with fireproof or incombustible stud partitions, and have a floor and ceiling of like construction, and all openings between said boiler rooms and other parts of the building in which it is placed shall be provided with automatic self closing fireproof doors.

Smoke houses

79 **Section 79.** All smoke houses shall be constructed with masonry walls, and all interior parts, including floors and roof, of iron or steel, and shall have ventilators at or near the top, and guards not less than 3′ above the fire bed sufficient to prevent the meats from falling into the fire, and if they open into other buildings, all openings shall be protected by iron doors or shutters.

Dry rooms

80 **Section 80.** All dry rooms, dry boxes and enclosures used for drying by artificial heat shall be enclosed in fireproof or incombustible stud partitions, with a floor and ceiling of like construction, and be provided with a fireproof door, or may be lined throughout with tin and asbestos paper ⅛″ thick, and such dry rooms, dry boxes or enclosures shall have wire netting of not more than 1″ mesh, so placed as to prevent any contact between inflammable materials and the steam or heating pipes, stoves or other heaters.

Shavings, etc.

81 **Section 81.** All buildings heretofore or hereafter erected in the First, Second or Third Building Districts, and which are or shall be used in whole or in part as planing, shingle or saw mills; sash, door, blind, part as woodworking factories or shops, or in which shavings, sawdust, excelsior, straw, hay, loose paper or similar inflammable material is used for packing purposes, shall have a vault room of sufficient size to contain the same, and all such combustible material shall be removed from such premises to such vault room at the close of each day's work. Such vault room shall be enclosed in fireproof partitions with floor and ceiling of like construction, or in case the same contains less than 400 cubic feet of space may have either walls, floors and ceilings, or either of them, constructed of not less than two thicknesses of matched dry lumber with broken joints, with a total thickness of not less than 2¾″, which said wood construction shall be covered on both sides with sheet metal with lock joints, and all openings to such vault room shall be closed by fireproof doors, which doors shall be kept closed at all times except when such material is being placed in or removed from such vault.

STAIRS

Proportion of tread to risers

Section 83. The height from top of tread to top of tread and the width from face of riser to face of riser shall be such that the sum of two risers plus the width of one tread shall not exceed 25½" or be less than 22"; provided, that the distance from face of riser to face of riser in stairs serving at times 100 or more persons shall be not less than 10½" nor less than 9½" in any hotel, lodging house, apartment house, club house, flat building, or office building, and the height of a riser shall in no case exceed the width of the tread. 83

The dimensions of treads and risers shall be maintained uniform in each run of stairs.

The width of winders shall be taken at a point one foot from their narrowest end.

Not more than 19 risers

Section 84. Stairs shall have not more than 19 risers without an intermediate landing. 84

There shall be not less than two risers between any two landings in buildings other than dwellings.

Head room

There shall be at least 7' of clear head room from the nosings in all stairways.

Landings

A landing not forming a turn in a stairway shall be at least 35" deep.

A landing forming a right angle turn in a stairway shall be as deep as the stairs are wide.

Landings where stairs return upon themselves shall be at least equal to both flights in width and one flight in depth.

Doors shall not swing over landings if the area of landings as above defined is obstructed by such doors when swung through 90° and no door shall swing over stairs.

Landings at the top and bottom of enclosed stairs shall be ¼ deeper than the width of the stairs and ¼ greater than the width of any door opening inward on the same.

Winders

No winders shall be allowed in stairs except in dwellings, stables, sheds and unclassified buildings.

Hand-rails

Section 85. All stairways of more than three risers shall have substantial balusters and hand-rails along all sides of flights and landings not adjoining walls and also around all well holes. 85

All stairs in public buildings, school buildings or to assembly halls, and all stairs over 4' wide in hotels, office buildings, store buildings, apartment houses, club houses, lodging houses and flat buildings shall have hand-rails on both sides, except that on landings of a greater length than the width of the stairs in buildings other than theaters or assembly halls, a wall rail will not be required.

In Class A

Section 86. Stairs in Class "A" buildings, except as provided in Section 201 hereof, shall be entirely of fireproof material, and of such strength as to sustain with safety a live load of 100 pounds per square foot. 86

87

Enclosed stairs (See Secs. 106, 175 and 180)

Section 87. Stairs in buildings used as stores, warehouses, factories or workshops shall be enclosed with fireproof walls or partitions, except that in other than Class "A" buildings not exceeding three stories in height, and used exclusively for warehouse, factory or workshop purposes, stair enclosures may be constructed of two thicknesses of 1¾" matched lumber placed vertical, with broken joints or of solid stud construction.

Stairs passing through a first story occupied other than for residential purposes, with a different class of occupancy above, shall be enclosed, and such enclosure shall be fireproof to the top of second story joists if in buildings more than three stories high, or, if not in conflict with other provisions of this ordinance may if building be three or less stories high, be solid wood as described above or incombustible stud construction, and no closets shall be constructed under such stairs in the first story.

There shall be no doors opening from first story stair enclosures into other rooms of a different class of occupancy from the rooms above, except that one room to be used in connection with the upper floors may be connected with such enclosure, if not connected with the remainder of first story: provided, however, that in first story entrance halls of Class "A" buildings, doors may be hung if metal covered, self-closing, glazed with wire glass, and in metal frames.

Stairs to basements in school buildings or buildings containing an assembly hall, or to any basement used for the storage of goods, shall be enclosed with fireproof walls or partitions extending to the top of first story joists, except as otherwise in this section permitted.

Required stair enclosures shall include stair halls connecting successive runs of stairs, and except in warehouses, factories, workshops and stores not more than two stories in height and excepting basement stair enclosures shall include a hall terminating at an exit to a street, alley or yard.

All interior sash in required stair enclosures shall be of metal in metal frames fixed in position, and glazed with wire glass in lights not exceeding six square feet in area each; the metal to be riveted or clinched and in no case dependent upon solder.

All interior doors in required stair enclosures shall be so hung as to remain closed at all times, or may be held open if provided with devices which will insure automatic closing at a temperature of 165° Fahr. Said doors shall be fireproof in fireproof enclosures and in non-fireproof enclosures shall be of construction equivalent to the enclosure.

Stairs passing through a first story occupied other than for residential purposes with a different class of occupancy above shall be enclosed.

Stairs to basements used for the storage of goods, except those leading directly to a street, alley or yard, shall be enclosed.

Stair enclosures built pursuant to above requirements, except as hereinafter provided, shall be fireproof.

Fireproof stair enclosures shall be provided with automatic self-closing fireproof doors which will close at a temperature of 165° Fahr.

In Class "C" or "E" buildings not exceeding two stories and basement in height, and used exclusively for warehouse, factory or workshop purposes, stair enclosures and doors may be constructed of two thicknesses of 1⅝" matched lumber placed vertically with broken joints or of solid stud construction.

Stair enclosures shall include stair halls connecting successive runs of stairs and at the ground floor shall include a hall terminating at an exit to a street, alley or yard.

All interior sash in required stair enclosures, except in Class "E" buildings, shall be of metal in metal frames, fixed in position, the metal to be riveted or clinched and in no case dependent on solder, and glazed with wire glass in lights not exceeding 6 square feet in area each.

All doors in stair enclosures, except in Class "E" buildings, shall be fireproof and self-closing.

There shall be no doors opening from first story stair enclosures into stores, saloons or other rooms of a different class of occupancy from the floors above, except that one office room to be used in connection with the upper floors may be built if enclosed as provided for stair enclosure and not connected with remainder of first story, and except that in first story entrance halls of Class "A" office buildings doors may be hung if metal covered, self-closing, glazed with wire glass and in metal frames.

There shall be no stairs to a basement from any required stair enclosure or under another flight of stairs in a school building or a building containing an assembly hall unless said basement stairs are enclosed with a masonry wall with openings therefrom provided with fireproof self-closing doors.

Stairs continuous Distance apart

Section 88. Stairs in all buildings except dwellings shall be continuous from the ground floor to the top floor, and when two or more stairs are required they shall be located at least 30′ apart or as far apart as is practicable. 88

Number of flights required Class A per unit area

Section 90. All buildings of Class "A" used as hotels, office buildings, stores, warehouses, factories or workshops shall have one flight of stairs for the first 7,200 square feet or less of second floor area, and an additional flight for each additional 7,200 square feet of second floor area or fraction thereof. 90

Number of flights required other than Class A per unit area

All buildings of other than Class "A" used as hotels, office buildings, stores, warehouses, factories or workshops, shall have two flights of stairs for the first 7,200 square feet or less of second floor area, and an additional flight for each additional 5,000 square feet of second floor area, or fraction thereof.

Number flights Class A per unit bed rooms

Section 91. Every apartment house, club house, lodging house or flat building of Class "A" shall have two flights of stairs of at least the minimum width hereinafter provided for the first 120 rooms above the ground floor exclusive of toilet rooms, and one additional flight for each additional 120 such rooms or fraction thereof. 91

Number flights other than Class A per unit bed rooms

Every apartment house, club house, lodging house or flat building, not of Class "A," shall have at least two flights of stairs of the minimum width hereinafter provided for the first 80 rooms above the ground floor exclusive of toilet rooms, and an additional flight for each additional 80 such rooms or fraction thereof.

If the fractional part of the said 120 additional rooms or the said 80 additional rooms does not exceed one-half these numbers respectively, the additional flight of stairs may be omitted if all stairs otherwise required, and halls leading thereto, be increased one-half in width over the minimum width hereinafter required.

Number determined by accessibility

Each room or suite of rooms in any apartment house, club house, lodging house, flat building or hotel shall have available for egress two stairs or one stair and one fire escape, without passing any open stair well, elevator shaft or light well.

Number flights in dwellings

Section 92. Dwellings exceeding two stories in height, except of Class "A," shall have two flights of stairs if there be 10 and not more than 20 rooms above the first story and an additional flight if there be more than 20 such rooms. 92

Dwellings of Class "A" may have one less flight of stairs than hereinabove required.

Number flights in school buildings

Section 94. All school buildings having more than three rooms above the first story shall have at least two flights of stairs so located that each will be accessible from every room above the first story. 94

School buildings accommodating more than 100 pupils above the first story shall have stairs of the material, width and number herein required for assembly halls and theaters.

Basement stairs

Section 95. Every cellar or basement used for storage or containing boilers or machinery in operation shall have two means of egress, one of which must be direct to a street, alley or yard, and may consist of a stationary ladder. 95

Every basement other than above described, and except in a dwelling, shall have a stairway at least 3′ wide direct to a street, alley or yard, for each 6,000 square feet thereof.

Stairs from basement assembly halls shall be in accordance with provisions hereinafter contained for assembly halls above basements.

Stairs adjoining elevators (See Sec. 102)

96 **Section 96.** Stairways adjoining elevator shafts shall be separated from such shafts by fireproof partitions.

Stairs not to be obstructed

97 **Section 97.** Stairways, landings and approaches thereto shall at all times be kept free from obstructions.

No combustible material shall be allowed to remain in any stair enclosure.

Stair doors not to be locked

Doors leading to stairs and stair enclosures shall not be locked in such manner that they cannot be opened without the use of a key by any person desiring egress.

Width of stairs

98 **Section 98.** The width of stairs shall be taken as the distance in the clear between walls, hand-rails, newel posts or other obstructions. Stairs and public halls leading thereto when designed for and intended to serve as means of egress for more than three resident families or in any building other than dwellings and buildings appurtenant thereto, shall be at least 3′ 6″ wide, and all halls shall be at least 6″ wider than the widest door swinging into them.

Exit doors

Exit doors from stairs at ground floor shall, either singly or in the aggregate, be at least equal in width to the stairs they serve and shall when serving as exits from places of public assembly swing outward.

Width of stair halls

Entrance stair halls, if the depth of the same does not exceed 15′, shall be at least as wide as the stairs, or the aggregate width of same, if more than one flight leads from the same entrance hall, and 6″ shall be added to the width of said entrance hall for each 10′ or fraction thereof of depth in excess of 15′. All entrance halls leading to stairways shall be as short and direct as possible from stairs to public street, alley or way.

Lighting of halls

101 **Section 101.** Every public hall shall be lighted in each story by at least one window, having a glass area of at least 12 square feet, opening directly on street, alley, yard or court, and so placed that light may pass directly through it and the hall to the opposite end of the hall, or by at least one such window opening directly upon a street, alley, yard, court or light shaft, in every 25′ in length, or fraction thereof, of such hall, except in so much of any entrance hall as lies between the entrance and the flight of stairs nearest the entrance, or by equivalent skylights or by equivalent borrowed light through prism glass panels in wall or doors of adjoining rooms or the ceiling of such hall, and each such hall shall have an equivalent of artificial light for night service while the building is occupied.

In any such public hall, recesses or returns not exceeding in length twice the width of the hall will

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be permitted without additional windows, but otherwise each recess or return shall be regarded for the purpose of this section, as if it were a separate hall. And any part of a public hall which is shut off from any other part by a door or doors shall be deemed a separate public hall within the meaning of this section.

ELEVATORS

102

Section 102. All elevator shafts below the first floor level shall be enclosed with masonry walls with self-closing fireproof doors.

Enclosures

All elevator shafts above the first floor level in Class "A" buildings shall be enclosed throughout with fireproof partitions and fireproof doors.

All elevator shafts above the first floor level in other than Class "A" buildings, if within 20′ of a stairway, shall be enclosed with fireproof partitions and fireproof doors.

Elevator enclosures in other than Class "A" buildings, located more than 20′ from a stairway, shall be of fireproof construction; or if not exceeding four stories of run may be of solid stud construction at least 3¾″ thick lined with tin as required for the covering of fireproof doors, or plastered both sides with hard plaster ⅝″ thick, and in either case provided with fireproof doors.

Grilles

All open passenger elevator shafts shall be protected at all floors and landings and to the ceiling opposite opening in cage with substantial metal grille work not less than 7′ in height, provided with self-closing gates.

All passenger elevators shall have an enclosed cage of metal grille work at least 6′ high, with not more than two openings. If there be two openings both shall be provided with gates arranged so that the opening of one will operate to close the other.

All passenger elevators shall be fully equipped with efficient devices for stopping the car in case of accident to the cables or machinery.

Safety devices

All elevators shall have more than one cable and shall be provided with proper equalizers.

Door fastenings

All doors and gates to elevator shafts shall be so fastened that they cannot be opened from the outside without the use of a key.

Doors and gates to elevator shafts shall always be closed when the elevator leaves the level of the floor, or be so designed that the elevator cannot be started until they are closed.

Open shafts

All open freight elevator shafts and open hoistways shall be closed at night, and all other times when not in use, by trap doors capable of sustaining with safety 50 pounds per square foot live load.

All open freight elevators, shafts and open shafts and hoistways not for elevators shall have substantial railings at least 3′ high entirely surrounding them at all times when not in actual use.

Projections in shafts

When the construction of freight elevator shaft is such by reason of offsets in walls or projecting girders or beams that the clearance between car and shaft cannot be maintained uniform, the car shall be provided with enclosing cage as required for passenger elevators.

Freight elevators

No freight elevator shall be used for carrying passengers unless the same be provided with an enclosed cage as provided for passenger elevators.

The provisions of this section shall apply to freight elevators and freight elevator shafts heretofore as well as hereafter constructed.

Section 105 Subject matter contained in Section 87. 105

Halls and passageways Class E buildings

Section 106. All Class "E" buildings two stories or more in height, except dwellings, garages, stables or workshops employing less than five persons, all passageways and public halls shall be enclosed in incombustible stud partitions; provided, however, that in buildings used exclusively as stores, warehouses, factories or workshops, such enclosing partitions may be of solid wood as provided in Section 6 hereof, but not less than 3" thick. 106

Plastering in Class E buildings

All Class "E" buildings used in whole or in part as public buildings, detention buildings, school buildings, assembly halls, theaters, hotels, office buildings, apartment houses, club houses, lodging houses or flat buildings, shall have all walls, partitions and ceilings lathed and plastered not less than ⅝" thick.

Cornices, bay windows, etc.

Section 107. All dormer windows, bay windows, towers, spires, ventilators, pent houses, balconies, cornices, mouldings and other like appendages on buildings other than Class "E" shall be constructed of fireproof material or have all exposed surfaces completely covered with sheet metal with lock joints, or with slate or tile or with metal lath and cement mortar. 107

Cornice lookouts shall be of iron or steel well secured to the walls, and walls shall be carried up to the top of cornices.

Hollow cornices, except on Class "E" buildings, shall have fireproof divisions built in opposite each division wall in the building.

Not less than 60% of the weight of each stone in a stone cornice shall be back of the face of the wall.

Pent houses over stairs shall not exceed 10' and over elevators 28' in height above roofs.

No part of a wall coping shall exceed 8' in height above ceiling of top story.

The provisions of this section shall also be held to apply to the reconstruction or repair of buildings heretofore erected.

Balconies, bay windows, etc.

108 **Section 108.** No balcony or bay window shall be more than 11′ in width, or extend more than 2′ beyond the street line, or be less than 15′ above the established grade, or approach nearer than 4′ to any party line, or project into any alley.

Balconies or bay windows on Class "A" buildings shall be constructed throughout of the same material as the building, and on Class "B" or "C" buildings more than four stories in height, shall have all supports constructed as required for Class "A" buildings, and all exterior woodwork except doors, sash and frames, shall be covered with slate or metal with lock joints, or with metal lath and cement plaster not less than ⅝″ thick.

Cornices, projection of

No cornice or belt course shall project past a line drawn from a point 2′ outside the building line and 15′ above the established grade, to a point 2′ outside the building line and 30′ above the established grade, and from the last named point to a point 5′ outside the building line and 144′ above the established grade, and in no case shall a cornice project more than 5′ over the street line, and no cornice or belt course shall be less than 15′ above the established grade, or shall project more than 1′ over any alley line, except returns of not more than 6′.

Brackets projecting more than 14″ over a street line shall be not less than 10′ above the established grade, and no part of any hood over any entrance shall project more than 2′ over a street line or be less than 10′ above the established grade.

Projections into streets

Projections into the line of a public street, not exceeding 8″ in the form of buttresses, pilasters or similar architectural embellishments may be permitted in the discretion of the Superintendent of Buildings, providing that no such projection shall be in the nature of a show window or the lower or upper steps of a flight of stairs.

Open lot area

109 **Section 109.** No story of any building hereafter erected or altered and used in whole or in part as a hotel, lodging house, apartment house, flat building, detention building, school building, club house or office building, shall cover more of the ground area of the lot or parcel of land on which the building is situated than as herein specified:

On corner lots facing on 3 streets, 92%.
On corner lots facing on 2 streets, 87½%.
On corner lots facing 2 streets and an alley, 90%.
On corner lots facing on 1 street and an alley, 85%.
On through lots facing on a street at each end, 85%.
On through lots more than 120′ in length or interior lots, 80%.

On open lots containing not more than 7,000 square feet, such open area will be required as will give each room such an amount of light and air as is required by this ordinance.

Provided, that any portion of the width of a corner lot or parcel of land more than 40′ from the street or alley corner shall be regarded as an interior lot; provided, also, that for every story above the third 1% additional open lot area shall be required for each additional story up to and including 13 stories in height, and each such building shall have at least one public entrance opening upon a street.

Nothing in this section contained shall be construed to prohibit the first story, when used as stores, dining room and office for the building, with no sleeping rooms below the second floor, from covering the entire lot area, except as provided in Section 110 of this ordinance.

Yards back of tenement houses

110

Section 110. Except in those cases hereinafter provided for, there shall be, behind every tenement house hereafter erected, a yard extending across the entire width of the lot, and at every point open from the ground to the sky unobstructed, except by fire escapes or unenclosed outside stairs.

The depth of said yard shall be measured from the extreme rear wall of the house to the rear line of the lot, and at right angles to said line, except that where there is an alley or open passageway in the rear of the lot the depth of the yard may be measured to the middle of said alley or open passageway. On the irregular lot of several depths, where there is more than one rear line to the lot, such yard may extend across the entire width of the lot in sections, provided that each section of the yard is in every part and at every point of the minimum depth hereinafter prescribed. Where the side lines of a lot converge toward the rear, the depth of the yard shall be such as to give it an area equal to the greatest width of the yard multiplied by the depth hereinafter prescribed.

Except on a corner lot, the depth of the yard behind every tenement house hereafter erected 50′ in height or less shall be not less than 8′ in every part. All yards without exception shall be increased in depth at least 1′ for every additional 10′ of height of the building, or fraction thereof, above 50′.

Except as hereinafter or otherwise provided, the depth of the yard behind every tenement house hereafter erected upon a corner lot shall be not less than 6′ in every part. But where such corner lot is more than 60′ in width, the depth of the yard shall be not less than 8′ in every part, and shall increase in depth as above provided.

Whenever a tenement house is hereafter erected upon a lot which runs through from street to street, or from a street to an alley or open passageway, and said lot is 150′ or more in depth, said yard space shall be left midway between the two streets, and shall extend across the entire width of the lot, and shall be not less than 16′ in depth from wall to wall, and shall be increased in depth at least 2′ for every additional 10′ in height of the building, or fraction thereof above 60'. Neither the yard behind one tenement house nor any part thereof shall be deemed to satisfy in whole or in part the requirement of a yard in front of another tenement house.

No yard shall be required behind a tenement house hereafter erected upon a lot entirely surrounded by streets, or by streets, alleys or open passageways, not less than 14' in width, or by such streets, alleys and passageways and a railroad right-of-way, a cemetery or a public park.

No yard shall be required behind a tenement house hereafter erected upon a lot less than 150' deep and running through from street to street, or from a street to an alley or open passageway running through from street to street, or from a street to such an alley or open passageway.

In the case of tenement houses built upon corner lots, except as hereinbefore provided, exterior courts open and unobstructed from the ground upwards, except by fire escapes or unenclosed stairways, may be substituted for yards as hereinbefore provided, such courts must be of area equivalent to that of a yard otherwise required for a lot of the same width.

Light courts

Section 111. No court in any building hereafter erected or altered and used as a school, flat or detention building, apartment or lodging house, or hotel, shall be of less area or width in proportion to the number of stories in such building above the bottom of such court as herein specified: 111

Stories.	Area, sq. ft.	Width, ft.
2	30	3
3	40	3
4	50	5
5	65	5
6	80	8
7	100	8
8	125	10
9	150	10
10	200	10

Courts enclosed on all sides by walls of buildings shall have not less than 5 square feet of area for each window opening into such court, and shall be provided with openings at the bottom for ventilation, opening to the outer air, and having a sectional area of not less than 3% of the area of the court, and if covered with a skylight shall have louvres or other permanent openings at the top equal in area to the court.

No open or enclosed court shall be obstructed in any manner from the bottom to the top, except by fire escapes, and shall in all cases if containing a fire escape, have at least one side opening directly upon or shall be connected by a fireproof passageway with a street, alley or yard.

The unobstructed space in any court shall be exclusive of space occupied by stairs and porches.

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CEMENT TESTING

Buildings to be inspected before lathing

112 **Section 112.** Whenever any building is ready to lath, the owner, contractor or other person in charge of the work shall notify the Inspector of such fact, giving the number of the building permit under which work is being performed; and it shall be the duty of the Inspector, within three calendar days after receiving such notice to inspect the building and ascertain whether or not firestops, bridging, chimneys, fireplaces and other parts which would be concealed by lath and plaster have been constructed in accordance with the provisions of this ordinance, and no lathing shall be done on such building within three calendar days after the giving of the notice above provided for, unless the building has been sooner inspected and approved by the Inspector.

REINFORCED CONCRETE Mixture

113 **Section 113.** Concrete for reinforced concrete construction shall be mixed as specified in this section. (For non-reinforced work, see Section 124.)

In footings, foundations, piers, walls, columns, girders and beams the concrete shall be mixed in proportion of one part cement, solid bulk, to not more than two parts of sand and not more than four parts of broken basaltic stone or cleaned, screened, coarse gravel free from loam or other foreign matter; provided, however, that the proportions of sand and stone or gravel must be so varied as to fully fill all voids, but the total quantity shall not be increased.

Aggregate permitted

In floor construction and fireproofing within a building, crushed hard burned brick or tile, furnace slag or vitrified cinders, free from dust or other foreign matter, may be substituted for broken stone or gravel.

(For "Mixing" see Section 120.)

(For Quality of Aggregates, see Section 124.)

Cement, quality of (See Sec. 123)

114 **Section 114.** All cement used in reinforced concrete construction shall be submitted to and satisfactorily pass the following test:

At least one barrel selected at random in every ten barrels to be used shall be tested by an expert employed by the person having charge of the work, or by an expert employed by the city, and said expert shall file with the Inspector a verified certificate of the result of tests made by him, or the Inspector may require that all or any portion of the required tests be made by an expert employed by the City of Seattle.

The specific gravity of cement thoroughly dry at 100° centigrade shall not be less than 3.10; it shall leave a residue of not more than 8% by weight on a No. 100 or of not more than 25% by weight on a No. 200 screen; it shall develop initial set in not less than 30 minutes, and develop hard set in not less than one hour or more than ten hours.

Cement shall not contain more than 1.75% of anhydrous sulphuric acid, not more than 4% of magnesia.

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Strictly a home product, meeting in every respect the requirements of The American Society of Civil Engineers, The American Society of Testing Materials and the specifications of The United States Government and **The City of Seattle.**

Tensile strength 1 to 1. As mortar mixed one part sand and one part cement by measure, after one day in air and six days' immersion in clear water, briquettes of the same shall not break under a tensile strain of 300 pounds per square inch, and after one day in air and 27 days immersion they shall not break at 400 pounds per square inch.

Tensile strength 1 to 3. As mortar mixed one part cement and three parts sand by weight, after one day in air and six days immersion in clear water, briquettes of the same shall not break under a tensile strain of 160 pounds per square inch, and after one day in air and 27 days immersion they shall not break at 225 pounds per square inch.

Sand

The sand used in testing shall pass a No. 20 screen, but be retained upon a No. 30 screen.

Care of cement

All cement shall be delivered upon the work in the original unbroken packages, and no cement shall be used from a package which, upon being opened, shows evidences of having set, and all cement after having been tested and approved shall be stored in such manner as to be protected from the weather, and not to come in contact with the ground or any moist surface.

Thickness

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Section 115. Wherever certain thicknesses of concrete walls, or fireproofing, or floor construction is required in this ordinance, it shall be understood to refer to the full solid thickness of the material only, exclusive of plastering or floor ballast.

Reinforcement

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Section 116. All reinforcing steel shall be completely enclosed by the concrete and such steel shall be 1½" from the exterior surface in columns and girders, 1¼" from the exterior surface in beams, and ½" from the exterior surface in floor slabs.

All vertical and horizontal bars, when used as compression members, shall be tied with suitable steel or iron ties not more than 15 times the diameter of the reinforcing rods apart; provided, however, that no tie rods shall be at any greater distance apart than the least diameter of the column, and in no case more than 12" apart. Every third tie shall run diagonally from corner to corner of any column or beam. Such ties shall be proportioned in size the same as in ties for lattice columns.

Stresses allowed

Reinforced concrete shall be so designed that the stresses in concrete and in the steel shall not exceed the following limits: Extreme fibre stresses on concrete in compression in floor construction, 500 pounds per square inch; shearing stress in concrete, 50 pounds per square inch; concrete in direct compression in columns and piers, 450 pounds per square inch; the tensile stresses in the concrete will not be considered; the tensile stresses in steel, one-third of the elastic limit; shearing stress in steel 10,000 pounds per square inch; compression in steel, 12,000 pounds per square inch; compression in iron, 10,000 pounds per square inch; the adhesion of concrete to

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steel shall be assumed to be 75 pounds per square inch of surface; the ratio of the moduli of elasticity of concrete and steel shall be taken as 1 to 15.

Theoretical assumptions

The following assumptions shall guide in the determination of the bending moments due to external forces: Beams and girders shall be considered as simply supported at the ends, no allowance being made for continuous construction over supports. The bending moment of beams shall be computed by multiplying the total distributed load by the length of the beam from center to center of the bearing supports, and dividing the result by eight. When floor slabs are of continuous construction and provided with reinforcement at the top over supports, they may be treated as continuous beams, and the bending moment for uniformly distributed loads shall be computed as not less than the total distributed load, multiplied by the span of the floor, and divided by twelve. When the floor slabs are square with reinforcement in both directions and supported on all sides, the bending moment shall be computed as not less than the total distributed load, multiplied by the span of the slab, and divided by twenty. When beams and floor slabs are built at the same time as a unit, the floor slab, to the extent of not more than five times its depth, may be taken as a part of the beam in computing its moment of resistance.

The moment of resistance of any reinforced concrete construction under tranverse loads shall be determined by formulas based on the following assumptions: That the bond between the concrete and steel is sufficient to make the two materials act together as a homogeneous solid; that the strain in any fibre is directly proportionate to the distance of that fibre from the neutral axis; that the modolus of elasticity of the concrete remains constant within the limits of the working stresses fixed in this ordinance.

The dimensions of a beam or girder and its reinforcement shall be determined and fixed in such a way that the strength of the metal in tension shall measure the strength of the beam or girder. If the concrete in compression, including the allowable concrete in adjoining floor construction, does not afford sufficient strength for the purpose, the compression side of the beam or girder in question shall also be reinforced with metal.

All beams or girders shall be reinforced with metal for shear. Other reactions, if necessary, shall likewise be reinforced. Neither the reinforcing metal nor the concrete shall be subject to the combined stresses so as to exceed in combination the stresses allowable separately.

Wherever possible, beams and girders and also their intermediate floor construction shall be made continuous. Reinforcing metal shall be used for that purpose in the top of all connecting members at the point of support, and it shall be sufficient both in section and length to prevent fracture at the point of support, assuming the connecting members are carrying twice their calculated loads.

The reinforcing metal in the bottom of floor slabs may be deflected to the top of the slab along the line of support, or separate reinforcing material may be used for the reinforcement in the top of the slab. In either case, however, if a part of a slab is considered as a part of a beam or girder, the reinforcing material used in the slab must cross the full width of both the beam or girder and the part of the slab so considered.

Columns

Section 117. Reinforced concrete columns shall not be less than 10" in their least dimension or exceed 15 times their least dimension in length, and the reinforcing rods shall be tied together at intervals of not more than 15 times the diameter of the rods, or not more than the least diameter of the column, or not more than 12" in any event. **117**

When vertical reinforcing rods are used, they shall have full perfect bearings at each joint, and such joints shall occur only at floors or other points of lateral support, and a tight-fitting sleeve, not less than 4" in length, shall be provided at all joints; provided, that in case of buildings in which allowance must be made for wind pressure, the rods shall be connected by threaded sleeves or turnbuckles.

The concrete shall cover the reinforcing at all points at least 1½", and in calculating the support of the reinforced column the outside 1" of concrete shall not be counted as a part of the section of the column. The axes of several columns, acting continuously through two or more stories, shall accurately coincide.

All columns in outside walls shall have not less than 4" of masonry between the reinforcing metal and the outside face of the wall.

Test loads

Section 118. All reinforced concrete construction, when required by the Inspector, but in no case within 28 days after construction, shall be subjected to a load test which shall show that the construction will sustain a load of twice that for which it is designed without any sign of failure, or in case of beams, girders or floors without deflecting more than .00143 of the span. **118**

Centering

Section 119. All forms, falsework and centering used in erecting reinforced concrete construction shall be made with tight joints and rigid. All column forms shall have a removable section at the base to permit the cleaning out of dirt and chips and for convenient inspection. Forms for columns, beams and girders shall be made of plank not less than 1¼" thick. **119**

The forms of centering for floor beams and girders shall be constructed in conjunction with the forms or centering of the floor slabs which they support, and no forms or centering shall be removed in less than 12 days, or until the cement has thoroughly set.

Mixing

Section 120. When the quantity of concrete to be used is less than 100 cubic yards, it may be mixed by hand, in which event the sand and cement shall be mixed and turned over twice before the stone or other inerts and water are added, and the water shall in all cases be added through a hose provided with a spraying nozzle, after which it shall be turned over not less than three times; if a greater quantity than 100 cubic yards be required it shall be mixed in a batch mixing machine. 120

When the water rises to the surface in wheeling cocrete from the place where mixed to the place of deposit, the concrete shall be turned over in the barrow with a shovel before it is deposited in the forms.

All concrete mixtures for reinforced concrete construction shall be what are termed wet mixtures, containing sufficient water to make it puddle into place and have the water show upon the surface upon working and light tamping in the forms.

Placing to be continuous

Section 121. Every reinforced concrete column shall be filled at least from floor to floor at the same time, and every reinforced concrete girder or beam shall be filled throughout the length of each span at the same time. 121

No pipes in columns

No water, steam, soil or vent pipe shall be built into the structural part of any concrete column or girder.

Section 122. All veneer facings on reinforced concrete construction shall be bonded by metal ties, in the form of staples, equal to ⅛" in diameter. The ties shall be bedded into the wall or structural part of the building not less than 4", with the ends turned over to give a mechanical anchorage, and shall not be more than 12" apart horizontally, and shall be placed in every piece of veneering in every horizontal joint between courses of stone or terra cotta veneering, and between every five courses of brick veneering. 122

Cement, tests required
(See Sec. 114)

Section 123. Cement for mortar and concrete, whenever used, shall be a standard Portland cement, and shall, whenever required by the Inspector, be submitted to and meet the tests hereinbefore required for testing cement to be used in reinforced concrete construction. 123

(Secure forms from the Department for making certificate of tests.)

QUALITY OF MATERIALS

Section 124. All materials used in building shall be of good quality for the purpose for which they are intended to be used, and shall conform to trade and manufacturer's standards. Each material must be free from imperfections whereby its strength or durability may be impaired, and no material will be classed as good when its strength falls more than 10% below the best of its kind. For the purpose of this ordinance the following standards shall be regarded as the minimum standard of their respective kinds of material, except as otherwise specified. 124

124

Brick All brick shall be of a quality that will stand all ordinary or usual handling, hauling, dumping and delivery on the scaffolds or work, without suffering more than 5% of breakage.

Stone and gravel Stone or gravel used for making non-reinforced concrete for footings or foundations shall be clean and free from dirt and dust, and no particle shall exceed in its greatest dimension the size that will pass through a 2″ ring, or be smaller than will pass through a ¼″ ring.

Other aggregate Stone, gravel, crushed hard burned brick, tile or vitrified cinders used in making concrete for fireproofing shall be clean and free from dirt and dust, and no particle shall exceed in its greatest dimension the size that will pass through a ¾″ ring, or be smaller than will pass through a ¼″ ring, and care shall be taken that these materials shall range uniformly between the sizes specified.

Sand Sand shall be clean, coarse and sharp, and shall be thoroughly washed until free from loam, clay or earthly particles.

Lime Lime shall be fresh burned quicklime which will thoroughly slake in 48 hours.

Mixture for mass concrete The proportion of cement, sand, gravel, broken stone, or brick for non-reinforced concrete used for footings or foundations shall be as follows: One part of cement to not more than three parts of sand and not more than five parts of broken stone or brick, or clean, washed gravel. These parts to be thoroughly mixed, with the proper amount of water to make the mass work into place with shovels and light tamping and have the water show on top of the concrete.

All non-reinforced concrete shall be used within 30 minutes after it is mixed, and if not so used shall be remixed, being treated as sand and gravel and having the required quantity of cement added.

Terra cotta Terra cotta, either plain or ornamental, shall be well burned and sufficiently stiffened with webs to keep it out of wind.

Wood Wood used for studs, joists, posts, beams or trusses and other bearing parts may be of rough common stock; provided, if a truss is of such size that it requires iron rods and bolts, the principal members shall be of select common stock. No large knots shall be allowed in the lower half of any floor joist or girder.

Wrought iron All wrought iron shall be fibrous, tough and ductile.

Cast iron Cast iron shall be of good foundry mixture, producing a clean, tough gray iron.

Steel Structural steel shall be that made either by the Bessemer or open hearth process.

Section 125. All structural wrought or cast iron, or steel, in quality, requirements of tests, workmanship, and in assemblage and interconnections of shapes shall be in accordance with the standard specifications of the Association of American Steel Manufacturers as given in hand books of the respective standard manufacturers. 125

Steel supervision

The Superintendent of Buildings may at any time require the owner to engage recognized experts to supervise the mill, shop and field work on structural steel, who shall file certified copies of their reports on the progress of the work, and no work shall be concealed or built upon until the Superintendent of Buildings has been furnished satisfactory proof that it is up to the accepted standard.

Tests may be required of all materials

Section 126. The Inspector may require structural material of whatever nature to be subjected to test to determine its character and quality by methods established by the standard modern authorities, such tests to be made under the supervision of the Inspector, or he may direct the owner to file with him a verified statement of the results of tests such as he may direct shall be made. 126

New varieties of materials

No new variety of structural material shall be used in any structure until it has been tested and found to fulfill the minimum conditions and tests required by this ordinance for materials used for like purposes.

(See Section 6, Ordinance 20651, page 130.)

Stresses, how computed

Section 127. The stresses allowed on materials used in construction shall be the computed stresses due to the dead load which they will be required to carry, plus the full live load allowed by the provisions of this ordinance, except as herein otherwise specifically provided. 127

Reference books recognized

The allowable factors of safety or the dimensions of each piece of combination of materials required in a building or structure, if not given in this ordinance, shall be ascertained by computation according to the rules prescribed by Carnegie's or Cambria's Handbooks, F. E. Kidder's Architects and Builders Pocketbook, J. K. Freitag's or W. H. Berkmire's Works on Fireproof Construction, or such other standard works as shall be approved by the Inspector and the Board of Public Works.

Blanket clause

Section 128. All buildings or parts of buildings hereafter erected and not in this ordinance specifically described shall be of good workmanship, of sound material, abundantly strong for the purpose intended. 128

Foundation loads

Section 129. The loads per square foot which may be applied to soil, stone, brickwork and concrete shall not be greater than as given below, viz.: 129

	Tons.
Wet sand, soft clay or alluvial soil	1
Clean dry sand or moderately dry clay	2
Compact sand, well cemented, or clay which is always dry	4
Coarse sand, well cemented, or gravel	6
Well cemented gravel hardpan, rock or shale unexposed to the action of the air or water	8
Concrete, composed of cement, 1 part, clean sharp coarse sand, 3 parts, and clean hard broken stone or washed gravel, 5 parts	15
Dimension sandstone in foundations	10
Dimension sandstone with beds dressed to uniform surface, having 1" joints laid in cement mortar	15
Dimension granite in foundations	15
Dimension granite, with beds dressed to uniform surface, having 1" joints laid in cement mortar	30
Rubble stone, laid in cement mortar	6
Common brick, laid in lime mortar	6
Common brick, laid in cement mortar	8
Hard burned brick, laid in lime mortar	8
Hard burned brick, laid in cement mortar	12
Tenino sandstone, dressed, uniform beds, laid in cement mortar, with ¼" joints	17
Chuckanut sandstone, dressed, uniform beds, laid in cement mortar, with ¼" joints	25
Granite, dressed, uniform beds, laid in cement mortar, with ¼" joints	60

Pier loads

The loads permitted for isolated masonry piers whose heights are greater than 6 and less than 10 times their least diameters, shall be 20% less than those given above.

Pier bonds

130

Section 130. All brick piers less than 28" in diameter shall have bond stones, spaced every four times the least diameter of the pier in height, and either of sandstone, 8" thick; granite, 4" thick; cast iron, 1" thick, or steel plate, ¼" thick.

The bonds shall be the full size of the pier, except that steel plates may be made 1" smaller than the pier. The pier in every case shall be made perfectly level before the bond is put in place.

Safe loads on timber

131

Section 131. The following shall be the safe loads allowed on timber perpendicular to the grain, per square inch: Douglas fir, 500 pounds; spruce, 300 pounds; hemlock, 250 pounds.

The following shall be the safe loads allowed on Douglas fir posts per square inch: On any post not more than 16 times its least diameter in length, 1,250 pounds.

On any post more than 16 times its least diameter in length, 1,000 pounds, minus 10 times the length in inches, divided by the least diameter of the post; provided, however, that no wooden post shall be more than 24 times the least diameter in length.

The safe loads for Douglas fir beams or joists shall be computed by Kidder's formula, to-wit: The square of the depth multiplied by twice the breadth, multiplied by 100 and divided by the span in feet. In concentrated loads, beams shall be computed according to the rules of Kidder's Architect and Builders Handbook.

The safe loads of other material shall be determined by tests made by the United States or any State University, or the City of Seattle.

Floor loads

132

Section 132. All floors shall be constructed to bear a safe live load per superficial square foot of not less than the following amounts:

	Pounds.
Public buildings	100
Detention buildings, in cells or wards	60
Churches, chapels, theatres, assembly halls or court rooms with permanent seats	80
Lobbies, passageways, corridors and stairways of the same	100
Assembly halls with movable seats	100
Halls used for dancing, or roller skating	150
Lobbies, passageways, corridors and stairways of the same	100
Stables	80
Dwellings, apartment houses, flat buildings and lodging houses	50
Class rooms in school	60
Assembly rooms in schools	80
Office building and hotels, ground floor	125
For floors above the ground floor	75
Store buildings for light merchandise, ground floor	125
For floors above the ground floor	100
Store buildings for heavy merchandise, such as grocery stores or hardware stores	150
Warehouses	200
Factories and workshops, when the nature of the work is general	125
Machine shops, armories, drill rooms and riding schools	250

In cases where the building is to be used for the sale, storage or manufacture of heavy machinery, the floors shall be proportioned to the load they may have to carry.

Roof loads

133

Section 133. All roofs shall be constructed so as to sustain with safety a live load per superficial foot measured on the horizontal as follows:

Roofs having a rise of 4" or less to the foot, 50 pounds; roofs having a rise of more than 4" and not more than 8" to the foot, 40 pounds; roofs having a rise of more than 8" to the foot, 30 pounds; Marquise and permanent awnings, 30 pounds.

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The framing of all roofs having a rise of 12" or more to the foot shall be so designed as to resist, in addition to the live load hereinabove mentioned, a wind pressure of 30 pounds per square foot assumed to apply from any sides.

Column loads, how computed

Section 134. In computing the live loads which are to be borne by columns in buildings five stories or more in height, used for any other purpose than warehouses, in addition to the dead loads actually carried, it shall be assumed that the columns will be required to carry the full live load allowed by Sections 132 and 133 for the top floor and the roof, but for all floors below the top floor it may be assumed that the columns will only be required to carry the live loads allowed by Section 132, reduced 5% for the next floor below the top floor, and an additional 5% for each floor below until the reduction reaches 50%, when the assumed load of all floors below shall be taken as 50% of the load allowed by Section 132.

Floor load certificate

Section 135. Before any building hereafter erected or altered and not at the time of the taking effect of this ordinance occupied as a store building, warehouse, factory or workshop, shall be occupied or used for any such purpose, the owner of such building shall procure from the Inspector a certificate in writing certifying to the amount of live load per superficial foot which each floor of said building is designed to sustain with apparent safety, and a copy of such certificate shall be kept constantly posted in a conspicuous place on each floor; and it shall be unlawful for any person to place any greater live load upon any floor of such building than that specified in such certificate.

Whenever the Inspector shall have reason to believe that any building heretofore erected and at the time of the taking effect of this ordinance used or occupied for the purposes above mentioned is being subjected to greater loads upon any floor than said floor is designed to carry with apparent safety, it shall be his duty to make an examination of such building and compute the loads which each floor thereof is designed to safely carry, and to issue his certificate as hereinabove provided, and cause the same to be posted in a conspicuous place on each floor of such building, and it shall thereafter be unlawful for any person to place any greater live load upon any floor of such building than that specified in such certificate.

It shall be unlawful for any person to remove, mutilate, destroy or conceal any certificate issued by the Inspector and posted as provided in this section.

Tents and covered wagons

Section 136. It shall be unlawful for any person to erect, maintain, use or occupy within the First or Second Building Districts, or to use or occupy for any purpose other than lodging, or within 15 feet of any building in the Third Building District, any tent, or covered wagon or other vehicle.

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Light and ventilation of sleeping rooms and kitchens

Section 138. Sleeping rooms and kitchens, in buildings other than dwellings, shall be not less than 8′ in height from floor to ceiling, and shall have not less than one window 864 square inches in area for each 512 cubic feet of air space in sleeping apartments and for each 300 cubic feet of air space in kitchens, and doors not less than 2′ 6″ wide, one of which must open upon the outer air; provided, that the back room of the suite may have a door and transom, the latter not less than 16″x30″ opening into a ventilating hallway, but no door shall be hung between the rooms of such suite, and no such sleeping room or kitchen shall be enclosed in partitions of wood or other combustible material unplastered. 138

Sleeping rooms and kitchens in basements

No such sleeping room or kitchen shall be located in a cellar, or in a basement, unless such basement shall be rendered dampproof and waterproof by a coating of cement plaster composed of 1 part cement and not more than 1½ parts sand, and ½″ thick, or a coating of hot asphalt extending from not less than 6″ above the ground level down the outside of and through the wall and over a concrete floor. When hot asphalt is used, all voids in the walls and floor shall be filled with cement before the asphalt is applied.

Fences

Section 139. Fences between lots shall in no case be more than 6′ high above the grade of the highest lot, unless constructed of wire netting with not less than a 2″ mesh. 139

Down spouts

Section 140. All buildings now or hereafter erected fronting on a street shall be kept provided with proper leaders for conducting water from the roof to the ground, and connected with the sewer, street gutter or a dry well in such manner as to protect the walls and foundations of any buildings from damage, and in no case shall water from roofs be allowed to flow upon the sidewalks. 140

Flag poles

Section 141. All flag poles shall have a diameter at base of not less than 1-50th of their height, and a diameter at the top of not less than 5-12th of the diameter at the base, and shall, if of wood, be of straight grain and free from loose knots, and shall be so braced, supported or stayed as to be capable of withstanding a computed wind pressure of 100 pounds to the square foot of pole surface. 141

Roof signs

Section 142. No sign shall hereafter be constructed, placed, affixed or maintained over or above the roof of any building, unless the same be constructed of galvanized iron, or some other non-combustible material, and placed not less than 3′ from the inner line of the fire walls and not less than 6′ above the roof of the building, and having a space of not less than 6′ between all uprights and between all braces thereof, and a clear space of not less than 5′ between each end of such sign and any fire wall or edge of roof adjacent thereto, and having all frame- 142 work and bracing of angle iron or wood covered with galvanized iron, or other non-combustible material, and being so braced and fastened to the roof and so constructed throughout as to be capable of withstanding a computed wind pressure of not less than 40 pounds to the superficial foot.

Wall signs

Section 143. No attachable sign, framework, boards, cloth or other material to or on which any sign, advertisement, picture or notice is painted, printed, posted, made, impressed, affixed or fastened shall hereafter be constructed, affixed or maintained upon the outer wall of any building higher than the fire wall, or in front of any standpipe or fire escape or across or in front of any exterior window or other exterior opening above the first story thereof, and no cloth sign shall be placed on any building, except upon the written permit of the Fire Marshal, and in no case shall a permit for such cloth sign be issued for a longer period than 15 days, or for the erection of such sign above the second story of any building, and such permit shall be issued only in the reasonable discretion of the Fire Marshal. 143

Section 144. All signs placed on any building, or part thereof, above the sills of the third story windows, shall be made with a facing of metal or asbestos board, and no sign of wood, cloth or other combustible material shall be more than 2′ in width, and no sign other than electric sign shall extend more than 3′ over or be less than 8′ above the sidewalk. 144

Billboards

Section 145. All billboards and other structures for posting, painting, tacking or exhibiting advertising of any kind within the First and Second Building Districts shall be faced with metal or other non-combustible material. 145

All billboards shall be so constructed, braced and maintained as to withstand a lateral wind pressure of 30 pounds to the square foot.

Billboard bond

Before any permit for the erection of a billboard shall be issued, the person applying for such permit shall execute and file with the City Comptroller a bond with good and sufficient sureties, to be approved by the Mayor and City Comptroller, in the sum of not less than $1,000, conditioned to save the city harmless from all claims, actions and damages of every kind which may accrue to or be suffered by any person by reason of the defective construction or maintenance of such billboard, or by reason of the negligent use and occupation thereof.

Sheds in 1st and 2d Districts

Section 146. Within the First and Second Building Districts storage sheds may be erected and occupied as in this section provided, but not otherwise. 146

Such sheds shall not exceed 15′ in height above the lowest street or alley grade adjoining the property upon which such shed is located.

The framework of such sheds shall be constructed entirely of iron or steel, resting on masonry footing or piers, extending not higher than the floor of such shed, or upon piles and capping over tide water.

The roof covering shall be of galvanized iron or of shiplap not less than ⅞" thick, and covered with incombustible roofing as required in Class "E" buildings.

The outside walls may be covered with galvanized iron, fastened to the frame with metal fastenings, and shall extend to the ground.

The floors may be constructed of not less than 2" plank, resting on floor joists not less than 2¾" in their least dimension, and supported by masonry piers, or piles and capping over tide water.

No partitions shall be allowed in such sheds except for an office for the shipping clerk, not more than 10' square, and the partitions enclosing such office shall be of galvanized iron, fastened to an iron or steel framework with metal fastenings.

Such sheds shall be used only for the purpose of storing therein of incombustible merchandise, and in no case shall such sheds be used for any other purpose, or for retailing therefrom the articles allowed to be stored therein.

The permit for the erection or occupancy of such sheds shall specify the goods allowed to be stored therein.

TEMPORARY BUILDINGS

147

Section 147. The Board of Public Works is hereby authorized and empowered, upon application being made in writing therefor, stating the purpose for which said building or structure is to be used, and accompanied by plans and specifications showing in detail the construction of such building or structure, and the means of exit therefrom, and of sanitation and fire protection to be provided therein, to authorize the Inspector to issue permits for the erection, use and occupancy of temporary wooden buildings, tents and other structures not more than one story in height, to be used for the purpose of holding religious services therein, convention halls, carnival, fair or exposition purposes and other public assemblages, or for stables, workshops, boarding houses or sleeping apartments used in connection with the grading of streets or other public works; to specify in detail how such building or other structure shall be erected, used and occupied; to provide that such building or structure shall be demolished and all material therein contained or used in connection therewith, and all debris resulting from such use, shall be removed from the premises where such building or structure is located within a time specified in such permit, which time shall be not more than 90 days from the granting of such permit; and to provide and specify the means of fire protection to be installed and maintained in connection with such building or structure, and the means for secur-

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ing and maintaining sanitary conditions in connection therewith.

In the event that such permit for the erection of such temporary building or structure shall be authorized by the Board of Public Works, the applicant therefor shall file with the City Comptroller a bond to the City of Seattle with good and sufficient sureties, to be approved by the Mayor and Comptroller, in a penal sum to be fixed by the Board of Public Works, and conditioned that he will, on or before the date set in such permit for the demolition and removal of such building or structure, demolish such building or structure and remove from the premises where the same is erected all material therein contained and used in connection therewith, and all debris resulting from the use thereof, place the said premises in a sanitary condition, and restore them, as near as may be, to the condition in which they existed prior to the erection of such building or structure; and conditioned further, that in case the principal on said bond shall fail, refuse or neglect to comply with the conditions thereof and of the permit for the issuance of which such bond is executed, the City of Seattle, by its duly authorized officers, may enter upon the premises and demolish said building or structure and remove the same and all material used in connection therewith and restore said premises to a sanitary condition, and that the cost and expense thereof may be recovered from the principal and sureties on said bond.

Nothing in this section contained shall be construed as requiring or directing the Board of Public Works to issue any permit for the erection of any temporary building or structure as in this section provided, but the Board of Public Works may in all cases refuse to issue or grant such permit.

STABLES

Concrete floors

Section 148. All stable floors shall be constructed of concrete at least 4" thick, with a smoothly troweled wearing surface at least ¾" thick composed of Portland cement and an equal quantity of sand; provided, that in lieu of a cement wearing surface vitrified paving brick with grouted joints may be substituted. No concrete or brick stable floor shall be supported by wood joists or be laid on plank; 148

Wood floors

Provided, however, that in case no part of said stable floors is less than 18" above the ground thereunder or adjacent thereto, they may be constructed of wood not less than 3½" thick, composed of two thicknesses of tongued and grooved or splined plank driven tight, with white lead paste in all joints, or of one thickness, with all joints calked with oakum and pitch. All wood floors in stables must be built and maintained so as to be water tight; must have adequate provision for expansion, if within masonry walls, and must have thorough cross ventilation beneath same.

Drainage All stall floors shall drain into gutters; the said gutters and all sumps for washing of vehicles shall be connected to a drainage system of cast iron pipe leading to a trapped catch basin, and from such catch basin proper connection shall be made to a public sewer, or cesspool. Openings from gutters and sumps to drains shall be protected by iron strainers set in iron frames so as to be removable. Drainage pipe shall be not less than 4" in diameter, except that laterals draining but one stall may be of 3" pipe. Catch basins must be constructed of masonry or iron and be at least 2' in any internal dimension, and be provided with vent pipe not more than 8" from seal.

Flushing A ¾" hose bib, equipped with hose, shall be so placed that the drainage system may readily be flushed, and it shall be required that all stable floors be thoroughly cleansed and flushed at least twice each week.

Fire hose Stables capable of accommodating 10 or more animals shall be provided with fully equipped fire hose reels or racks connected to an adequate source of water supply through not less than 1½" pipe; said reels or racks shall be of such number and so placed that with 50' of hose and ¾" nozzle with a water pressure of 20 pounds per square inch all parts of the building may be reached.

Manure All stables must be provided with water-tight and tightly closed receptacles for manure, of such dimensions as to contain all accumulations of manure, and no manure shall be allowed to accumulate on the floors or on adjacent grounds: provided, however, that on premises in the Third Building District of one acre or more in extent, manure may be stacked with the approval of the Commissioner of Health. Receptacles for manure located within any building shall be vented, through an air-tight shaft of at least 48" sectional area leading to and above the level of the roof and to a point more than 20' from any adjacent property.

Exits All stables capable of accommodating 10 animals shall have at least two exits 5' or more in width at least 30' apart and at opposite ends of the building when practicable. All stables capable of accommodating more than 10 and less than 50 animals shall have exits as hereinabove required, except that the width thereof shall be increased 6" for each additional 10 animals. All stables capable of accommodating more than 50 animals shall, in addition to the exits hereinbefore required, have an additional exit or exits, as, in the judgment of the Superintendent of Buildings, the exigency of the case may require.

Runways Stables located above the ground floor shall have runways equal in number and width to the exits required by this ordinance, terminating at the exits; said runways to have no greater pitch than 6 to 12.

Stable yards No portion of the ground adjacent to any stable shall be used for the purpose of allowing animals to stand or run at large.

Public stables It shall be unlawful to erect or convert a building to be used as a stable within the Third Building District to house animals for hire or as a boarding, community or dairy stable, without there be filed with the application for a permit the written consent thereto of the owners of two-thirds of the remaining property located within 500′ of the proposed stable; provided, however, that should there be no building within 500′ of the proposed stable occupied as a dwelling, flat, apartment, tenement house or school, such signatures of consent shall not be required.

Permit **Section 149.** No permit shall issue for the erection or alteration of a building to be used as a stable or for alterations intended to increase the capacity of a stable unless the location of said stable be approved by the Board of Public Works after the said board has given a public hearing to the applicant and to those desiring to protest against the approval of such location; provided, however, that should no protest in writing be filed in the office of the Superintendent of Buildings within two weeks of the date that application for permit for such erection or alteration is made, the location shall be deemed approved, and the Superintendent of Buildings is authorized to issue such permit subject to conditions described in Section 148 hereof. 149

Protests Protests against the location of a stable or the increase in capacity of a stable must be in writing, signed by the owners of property within 500′ of the proposed stable, and such protest must plainly indicate by lot and block number the location of property owned by the protestant.

Placard It shall be the duty of the Superintendent of Buildings to cause a placard to be conspicuously posted on the site of any proposed stable not later than 48 hours after the filing of the application for a permit to erect or alter the same, stating thereon the number of animals to be accommodated, the date of filing of application, the date of public hearing in the event of protests being filed, and giving all necessary instructions for the preparation and filing of protests.

Exempt district The provisions of this section shall not apply to applications for permits to erect buildings for stable purposes in the First Building District, or to erect, alter or convert buildings for stable purposes when located more than 500′ from any building occupied as a flat, apartment, hotel, school or dwelling house.

HOSPITALS

Section 150. All buildings used for hospitals, sanitariums or places for nursing, treating or caring for three or more patients, if more than three stories in height above the lowest street or alley grade, shall be Class "A" buildings, and no such buildings used as such hospital shall exceed six stories in height above the lowest street or alley grade. 150

ASSEMBLY HALLS

Height limit

Section 151. Every assembly hall shall have at least one means of exit on a public street.

No portion of the main floor of any assembly hall, within the limits of the First and Second Building Districts, except in Class "A" buildings, shall be more than 10 feet above the street grade at the main entrance if such hall shall accommodate 1,000 persons, or more than 16′ above said grade if such hall shall accommodate more than 500 and less than 1,000 persons, or more than 25′ above said grade if said hall shall accommodate less than 500 persons.

No portion of the main floor of any assembly hall within the limits of the Third Building District shall be more than 45′ above the street grade at the main entrance; provided, however, that no such assembly hall shall accommodate more than 400 persons.

Stairs

Stairways in or leading to assembly halls and serving for the exit of 50 persons or less shall be at least 4′ wide, and for every additional 50 persons to be accommodated 6″ shall be added to their width.

No circular or winding stairs for the use of the public shall be permitted in any assembly hall accommodating more than 300 persons.

Every assembly hall with accommodations for 500 or more persons shall have at least two separate and distinct exits, located as far apart as is practicable, and with accommodations for 700 or more persons shall have at least 3 separate and distinct exits.

Exit signs

All egress openings in assembly halls shall have the word "EXIT" conspicuously placed over them.

Exit doors

Doorways of exits or entrances shall not be less than 5′ in width, and for every additional 100 persons, or portion thereof, to be accommodated in excess of 500, an aggregate of 12″ additional exit width shall be provided, and in no case shall the exit be less than the aggregate width of all stairways leading thereto.

Aisles

All aisles in assembly halls shall be at least 3′ wide, and if having seats on both sides, shall be increased in width towards the exit in the ratio of 1″ to 5 running feet.

No seat shall be more than 13 feet from an aisle.

Seats

All seats on the main floor of assembly halls shall be at least 31″ from back to back measured in a horizontal direction, and in all galleries or balconies at least 30″, and all platforms for seats on inclined floors shall not be more than 21″ in height of risers, and of a width not less than the distance between seats, and all seats in galleries, having platforms on inclined floors, shall be firmly fixed to the floors.

Capacity, how computed

In computing the accommodations of assembly halls having movable seats, 6 square feet shall be allowed for each person.

Stand pipes

All assembly halls with accommodations for 1,000 or more persons shall be provided with at least one stand pipe and fire escape on the outside of the building in a street or alley, extending to the roof, with hose attachment close to a window or door at each floor or gallery.

Certificate of inspection

No assembly hall shall be opened to the public until the same shall have been inspected and found to comply with all the provisions of this ordinance in relation thereto, and a permit for such opening shall have been issued by the Superintendent of Buildings.

Chairs in aisles

Right of officials to enter

152 **Section 152.** All aisles and passageways in and leading to assembly halls shall be kept free from camp stools, chairs, sofas, benches and other obstructions during all services, performances, exhibitions, lectures, concerts, balls or other public assemblages therein, and the Fire Marshal, the Chief and Assistant Chiefs of the Fire Department, and any police officer, shall have the right to enter any assembly hall at any time while the same is occupied by a public assemblage for the purpose of enforcing this provision.

THEATERS

If capacity 1,000 or more to be Class A

Modifications permitted when no balcony

153 **Section 153.** All buildings containing a theater having a seating capacity of 1,000 or more, hereafter erected or altered, shall be Class "A" buildings, except that buildings not more than one story in height above the lowest street or alley grade, with masonry walls, may contain a theater having a seating capacity of 1,000 or more, provided such theater has no balcony or gallery and has the auditorium floors constructed as required in Class "C" buildings, and all interior walls, partitions and ceilings lathed and plastered with hard plaster, and has, for a seating capacity of 1,000 or more, at least one, and for a seating capacity of 1,500 or more, at least two exits on each of three sides of the building, which exits shall open directly upon a street or alley, or unoccupied lot not less than 16′ in its least dimension adjoining a street or alley, or open into passageways with fireproof walls and ceilings, leading directly to a street, alley or unoccupied lot, and each exit and passageway shall be at least 5′ in width and the combined width of such exits shall be equal to not less than 2′ for each 100 of the seating capacity of such theater.

Capacity less than 1,000, class of construction

154 **Section 154.** All buildings containing a theater having a seating capacity of less than 1,000, hereafter erected or altered, shall be Class "A" buildings, or Class "B," "C" or "D" buildings with all walls and ceilings covered with metal lath or plaster board and hard plaster, and all partitions fireproof or incombustible stud partitions, except that Class "E" buildings not more than one story in height above the lowest street or alley grade may contain a theater having a seating capacity of less than 500; provided such theater has no balcony or gallery and has the auditorium floors constructed as required in Class "C" buildings, and all walls, partitions and ceilings lathed and plastered with hard plaster, and has the auditorium floor not more than 3′ above the lowest street or alley grade; provided, that no theater in

Class "B," "C" or "D" buildings shall be located over, under or adjoining any room used for any other purpose without being separated therefrom by fireproof floors and walls, having no openings through them connected with the theater, or have any portion of the main auditorium floor more than 16' above the lowest street or alley grade.

Exits

Width of

Section 155. Every theater shall have at least one exit opening directly upon a street or into an unobstructed passageway leading directly to a street, which said exits and passageway, if any, shall be not less than 10' in width, and every theater shall have at least two exits for a seating capacity of less than 500 and at least three exits for a seating capacity of 500 or more, opening directly upon a street or into an unobstructed passageway leading directly to a street, one of which exits may be through the entrance above required, and said exits, and passageways if any, shall be not less than 5' in width each, and the aggregate width of said exits opening into streets shall be increased 1' for each additional 100 seating capacity, or fraction thereof over 500. All doors of exits or entrances shall open outwardly and shall be hung to swing in such a manner as not to become an obstruction in a passage or corridor, and no such doors shall be locked when the building is open to the public or during any performance therein. 15

From above first floor

All exits above the first floor shall have independent stairs and exits to the street; provided, however, that a common place of exit and entrance may serve for the main floor of the auditorium and the balcony, provided its capacity be equal to the aggregate capacity of the outlets from the main floor and the said balcony.

Passages to stairs

No passage leading to any stairway communicating with any entrance or exit shall be less than 4' in width in any part thereof.

Exits from stage

At least two independent exits shall be provided from the stage, located on opposite sides of the same and leading directly, or through a fireproof passage, to a street or alley.

Side exits

Side corridors

Section 156. In addition to the entrance and exits on the street required by the preceding section, in all theaters having a seating capacity of 500 or more, there shall be provided an open court, or a corridor, hall or space on the side not bordering on a street or alley when the building is located on a corner lot, and on both sides of the building where there is but one frontage on the street, with exits thereto from the auditorium floor and each gallery as hereinbefore provided, but no exit opening to such court, corridor or hall shall be located back of the proscenium wall. 15

Width of

The width of such open court, or courts, corridors or halls, shall be not less than 5′ where the seating capacity is less than 1,000; or less than 6′ in width when the seating capacity is more than 1,000 or less than 1,800; or less than 7′ in width when the seating capacity exceeds 1,800.

Each such court, corridor or hall, or a separate corridor therefrom, shall continue to a street or alley through such superstructure as may be built on the street side of the auditorium, with walls of masonry on each side of the entire length, with no projections in same, and the ceilings, floors and stairways therein shall be fireproof.

The outer openings of all such courts, halls or corridors shall be provided with doors or gates opening toward the street. During the performance the doors or gates shall be kept open by proper fastenings; at other times they shall be closed and fastened on the inner side by movable bolts or latches which can be opened without a key.

Must be kept clear

The said courts, halls or corridors, or passages used for exits through any adjoining buildings, shall not be used for storage purposes or for any purposes whatever, except for exit and entrance from and to adjoining Class "A" buildings used exclusively for offices, and for exit from the auditorium and galleries, and they must be kept clear and free during performances.

The level of all said courts, halls and corridors, at the entrance to the building, shall be not greater than one step above the level of the sidewalk where they begin at the street entrance. The entrance of the main front of the building shall not be on a lower level than the sidewalk, and shall not be more than 28″ above the sidewalk. Gradients with a rise of not more than one to six shall be used exclusively in all exits and approaches from the first floor level to a street or alley.

Emergency exits

Section 157. Every theater shall have, if the seating capacity is less than 1,000, at least one, and if the seating capacity is 1,000 or more, at least two emergency exits opening from each side of each floor or gallery of the auditorium, either on to a street frontage of the building, or on to a side street or an alley or into a court, corridor or hall. 157

These exits shall be closed with fireproof doors set in fireproof frames and fastened only by a device which will readily yield to the direct outward pressure of one man, and said doors shall be at least 3″ narrower than the court, hall, corridor or balcony upon which they open, and shall be hung with hinges on the side toward the exit from the building or toward the stairway leading downward from such balcony, unless the doorway is so located that persons issuing from the other doorway on the same side would not have to pass it to reach the outer exit, in which case the hinges shall be on the opposite side. All doors above described shall open outward from an aisle. All balconies and stairways leading from such exits shall be constructed of iron or steel throughout, and shall be of such strength as to sustain a load of 100 pounds to the square foot, and shall be not less than 2' 6" in width, and where such stairways are on the outer side of a building adjoining a street or alley, they shall be carried to the ground on private property.

When building is partially a theater

Section 158. That portion of any building containing a theater, bordering on the streets and not required for the use of the theater, may be used for other purposes, provided there are masonry walls separating such portion of the building from the portion used as a theater, and there shall be no openings in such division walls except into a hall or corridor of a Class "A" building, used only as an office building, and such openings shall be closed with automatic self-closing fireproof doors. 158

Proscenium wall

Section 159. In all theaters there shall be a masonry division wall separating the stage from the auditorium, which wall shall extend at least 4' above the highest roof of the stage or auditorium. 159

Above the proscenium opening there shall be an iron, steel or reinforced concrete beam thoroughly fireproofed as required in Class "A" buildings. If an orchestra is constructed above the proscenium opening it shall be placed on the auditorium side of the division wall, and there shall be no opening therefrom to the stage. The moulding around the proscenium opening shall be built solid of masonry, plaster or stucco, but may be faced with metal securely fastened to the wall with iron anchors and with no open space behind.

The proscenium opening shall be provided with a fireproof asbestos curtain, sliding at each end within iron grooves, securely fastened to the division wall, and extending into such iron grooves to a depth of not les sthan 6" on each side of the opening, which fireproof curtain shall be raised at the commencement of each performance and lowered at the close of said performance, and be operated by approved machinery for that purpose. Non-fireproof curtains shall not be placed nearer that 2' to the footlights.

No doorway or opening through the proscenium wall from the auditorium shall be allowed above the level of the stage door, and such openings, if any, shall have fireproof doors on each side of the wall, and the doors shall be hung so as to be opened from either side at all times without keys.

Aisles

Section 160. In all theaters all aisles on the respective floors in the auditorium, balcony and galleries, having seats on both sides of the same, shall not be less than 3' wide, and shall be increased in width towards the exit in the ratio of 1" to five running feet. Aisles having seats on one side only shall not be less than 3' wide at any place except that 160 aisles in front of the boxes may be 2′ wide. No seat in the auditorium, balcony or galleries shall have more than six seats intervening between it and an aisle, except that in each of the last four rows next to the foyer on the main floor there may be seven seats intervening.

Seats

No seats in the auditorium, excepting those contained in the boxes, shall be less than 31″ from back to back measured in a horizontal direction, nor less than 30″ in the balcony, nor less than 28″ in any gallery, and all must be firmly secured to the floor.

No platforms in the balcony and galleries formed to receive the seats shall be more than 21″ in height of riser, nor less than 28″ in width of platform, and the riser of any platform shall be covered with metal or metal lath and hard plaster.

Gallery fronts

Section 161. In all theaters in Class "A" buildings the fronts of galleries shall be formed of masonry or iron and steel, and in Class "D" buildings may be of wood construction covered on both sides with metal or metal lath and hard plaster. The capping of all gallery fronts may be of oak, maple or other hard wood. 161

Stairs

Section 162. In all theaters all stairs shall be of masonry or iron or steel, except that in Class "B," "C" or "D" buildings they may be of wood construction, provided all treads, risers and other exposed parts are of oak, maple or other hard wood not less than 1¼″ thick. 162

No stairway shall lead to a basement or cellar from any part of a theater in front of the proscenium wall.

All stairways serving for the exit of 50 people or less shall be at least 4′ wide, and for every additional 50 people to be accommodated shall be increased at least 6″ in width. No circular or winding stairs for the use of the public shall be permitted.

Where the seating capacity is more than 1,000 there shall be at least two independent stairways, with direct exterior outlets, provided for each gallery where there are not more than two galleries, and the same shall be located on opposite sides of said galleries.

Where there are more than two galleries, one or more additional stairways shall be provided, which shall communicate directly with exterior outlets. Where the seating capacity is 1,000 or less, two direct lines of stairways only shall be required, located on opposite sides of the gallery, and in both cases shall extend from the sidewalk level to the upper gallery, with outlets from each gallery to each of said stairways.

All inside stairways in class "B," "C" or "D" buildings leading to the upper galleries of the auditorium shall be closed on both sides with masonry walls or incombustible stud partitions. Stairs leading to the front or lower gallery may be left open on one side, but in no case shall stairs leading to any gallery be left open on both sides.

When straight stairs return directly upon themselves, a landing the full width of both flights, without steps, shall be provided. The outer line of such landing shall be curved to a radius of not less than 2′ to avoid square angles. Stairs turning in an angle shall have a landing without winders at said turn. In stairs where two flights connect with one main flight, there shall be no winders, and the width of the main flight shall be at least equal to the aggregate width of the side flights. All stairs shall have landings not exceeding 12′ apart perpendicularly.

All enclosed stairways shall have on both sides strong and continuous hand rails firmly secured to the walls, not less than 2″ distant therefrom, and about 3′ above the stairs. All staircases 8′ and over in width shall be provided with a center hand rail of metal not less than 2′ in diameter, placed at a height of about 3′ above the center of the treads, and supported on wrought iron, steel or brass standards not less than 2″ in diameter, placed not less than 4′ nor more than 6′ apart, and securely fastened or bolted to the treads or risers, or both, and at the head of each such flight of stairs, and at each landing there shall be a post or standard at least 6′ in height to which the said hand rail shall be securely fastened.

Dressing rooms

Section 163. In all theaters the walls separating the actors' dressing rooms from the stage, and the partitions dividing the dressing rooms, together with the partitions of every passageway, from the same to the stage, and all other partitions on or about the stage, shall be fireproof partitions. All doors in any of the said partitions shall be fireproof doors. All shelving and cupboards in dressing rooms, property rooms or other storage rooms shall be constructed of metal, slate, or of asbestos board not less than $\frac{3}{16}$″ thick.

All dressing rooms shall have an independent exit leading directly into a street or alley or to a hall, corridor or court opening into a street or alley, and shall not be more than one story below the street or alley level, and may be located in fly galleries provided with independent exits, and all stairs leading to dressing or other rooms above or below the stage shall be of iron or steel, and not less than 2′ in width.

Windows back of proscenium

All windows back of the proscenium wall shall be arranged to open, and none of the windows in outside walls shall have fixed sashes, iron grilles or bars.

No workshop, storage or general property room shall be located on the auditorium side of the proscenium wall, nor in any of the fly galleries.

Stage floors

Section 164. In all theaters the stage floor shall be constructed as required for floors in class "A" buildings, except that openings may be left therein for the working of scenery, traps and other mechanical apparatus; provided, said openings, when not in use, shall be covered with boards or trap doors of maple, oak or other hard wood not less than 1½" thick.

Rigging loft 165

Section 165. In all theaters having a seating capacity of 500 or more the rigging loft and fly galleries shall be constructed of iron or steel throughout, with floors of iron or steel. In theaters having a seating capacity of less than 500 the rigging loft and fly galleries may be of wood, with no supports or floor joists less than 2¾" in their least dimension, and floors not less than 1¾" thick.

Stage scenery 166

Section 166. In all theaters all stage scenery and framing, curtains and decorations made of combustible material, and all exposed woodwork throughout the entire theater, shall be painted or saturated with a paint or chemical solution which will render it noninflammable, and shall be tested and approved by the Inspector.

Stand pipes 167

Section 167. All theaters shall be provided with stand pipes not less than 4" in diameter, as follows: One on each side of the auditorium with hose attachments on each floor and gallery; at least one on each side of the stage with hose attachment on each floor and one in the carpenter shop if the same be contiguous to or in the building. All such stand pipes shall be kept clear from obstructions. Said stand pipes shall be separate and distinct, receiving their supply of water direct from the street main through a connection of at least the same area as the stand pipes, and shall be fitted with the regulation couplings of the Fire Department, and shall be kept constantly filled with water and ready for immediate use at all times, and at least 100' of 2½" hose, fitted with the regulation couplings of the Fire Department, and with nozzles attached thereto, and with hose spanners at each outlet shall always be kept attached to each hose attachment.

In addition to the above required stand pipes, there shall be provided a 4" stand pipe running from the cellar to the roof, with a 2-way 2½" Siamese connection placed on the street above the curb level, and with a 2½" outlet, with a 2½" hose attached thereto at each floor, and placed as near the stairs as is practicable.

A separate and distinct system of pipes shall be placed behind the proscenium wall, not connected in any manner with the stand pipe, but supplied with water from a tank or tanks located on the roof over the stage, and containing not less than one gallon of water for each square foot of floor area to be sprinkled, which tanks shall be at all times filled with water, and said pipes shall connect with automatic sprinklers which will operate at a temperature of 165° Fahrenheit, and so arranged as to sprinkle every square foot of floor area behind the proscenium wall, including the stage, the rigging loft

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and fly galleries, all dressing rooms, property rooms, store rooms, paint rooms and the carpenter shop.

Fire extinguishers, etc. There shall be provided at least two portable liquid chemical fire extinguishers, at least four axes, and two 25′ hooks, two 15′ hooks, and two 10′ hooks, on each tier or floor of the stage.

Lighting (electricity) **Section 168.** In every building containing a theater every portion of the building devoted to the use of the public and all outlets leading to the streets, including the open courts, halls and corridors, shall be well lighted with electricity during every performance, and shall remain lighted until the audience has left the premises. All said lights in the halls, courts, corridors, lobbies or any other part of said building used by the audience, except the auditorium, must be controlled by a separate shut-off located in the box office and controlled only in that particular place. 168

Lighting (gas) Gas mains supplying the building shall have independent connections in front of and behind the proscenium wall, and provision shall be made for shutting off the gas of each system from the outside of the building.

Heating All ducts or shafts used for conducting heated air from the main chandelier, or from any other light or lights, shall be constructed of metal and made double with an air space between, vented at the top.

Floor plans A diagram or plan of each gallery or floor, each occupying a space not less than 16 square inches and showing distinctly the exits thereon, shall be printed in black lines in a legible manner on the program of each performance.

Exit signs Every exit shall have over the same on the inside the word "EXIT" painted in legible letters not less than 6″ in height, and also a red light of not less than 16 candlepower, on a circuit independent from all other lights in the building.

Stage skylight **Section 169.** In every theater there shall be provided over the stage and in direct and open communication through any ceiling thereof, a metal framed skylight or skylights of an area or combined area of not less than one-tenth of the area of the stage, fitted with rolling sash having brass wheels not less than 2½″ in diameter, with brass journals and resting on brass tracks extending the entire length of the sash and an equal distance, beyond the opening, on the roof, and having an incline of not less than one to sixteen. The sash shall be glazed with glass not more than ⅛″ thick, in panes not less than 300 square inches in area, and in no case shall the glass be wire glass, and shall be set on curbs so located that the lowest portion of the tracks on which they run will be not less than 1′ above the roof. All such skylights shall be so constructed that the entire area of each will open instantly upon the cutting, burning or releasing of a loose twisted hemp cord not more than ¼″ in diameter, which cord shall be so arranged as to hold said skylights 169 closed, and shall be carried downward to the lowest level that will not interfere with scenery or rigging, and then carried through pulleys not less than 3" in diameter, with flanges not less than 1" wide, so arranged that the cord will cross the full width and length of the stage in both directions, and each of the portions of the cord crossing the stage shall be provided with two or more fusible link devices, one on each side of the stage, which will operate and release said cord at a temperature of 165° Fahrenheit.

In addition to the above required hempen cord, there shall extend from the skylights to each fly gallery and to the stage manager's desk, metal cords or wires, so arranged that when pulled they will instantly cut off and release the hempen cord at the skylight and allow the sash to be open, and there shall be provided in each fly gallery and at the stage manager's desk a permanent sign in plain letters not less than 1" high, bearing the words "To Ventilate the Stage and Clear Smoke Pull This Cord."

Immediately underneath the glass of all said skylights there shall be wire netting of not more than 1" mesh.

Boiler rooms

Section 170. In all buildings containing theaters, all boiler and fuel rooms shall be enclosed in masonry walls, and all floors and ceilings thereof shall be of masonry, and all doorways in said walls shall be provided with automatic self-closing fireproof doors, which will close at a temperature of 165° Fahrenheit. 1

Floor registers

No floor register for heating purposes shall be used, and no coil or radiator shall be placed in any aisle, or hall, corridor or passageway used as an exit, but the same shall be placed in recesses formed in walls or partitions.

Hot pipes

All supply, return or exhaust pipes containing hot water or steam shall be encased and protected by not less than 2" of concrete, or metal collars with not less than ½" open space around the pipe where the same pass through any floor or woodwork.

Right of officials to enter

Section 171. The Mayor, member of the City Council, member of the Board of Public Works, the Fire Marshal, the City Electrician, and the Chiefs of the Fire and Police Departments, and the Inspector shall have the right to enter any building heretofore or hereafter erected and containing a theater, and all parts thereof, at any reasonable time and at all times when occupied by the public, for the purpose of ascertaining whether the provisions of this ordinance are being complied with. 1

Fire alarm

Section 172. All theaters shall be provided with an auxiliary electrical fire alarm system, which shall be connected with and operate a main fire alarm box located outside of, but within 50′ of the theater building, and connected with the city firm alarm system, and said auxiliary system shall be installed under 1

City electrician the supervision of the City Electrician, and all electrical wiring and equipment throughout the building shall be installed and operated subject to inspection and approval by the City Electrician.

173 **Firemen** **Section 173.** The owner, agent or lessee of every theater shall employ one or more competent and experienced firemen, approved by, and who shall report to and be subject to the orders of the Chief of the Fire Department, and who shall be in constant attendance at such theater during all times when the same is open to the public, and shall wear such uniform as will indicate that they are firemen under the provisions of this section.

Such firemen shall, before every performance in such theater, examine and test all fire appaartus required by this ordinance to be installed and kept in theaters.

No theater shall be opened to the public unless such fire apparatus is in its proper place and in good working order, and such firemen shall, during every performance, keep diligent watch for fires and take prompt measures for extinguishing any fires that may occur, and shall not be required or allowed, while on duty as such firemen, or during any time when such theater is open to the public, to act as scene shifters or stage hands or to do any other work or perform any other duties than as are required in this section.

174 **This ordinance not retroactive** **Section 174.** No theater, hereafter erected or altered to the extent of 40% of the original cost, shall be used as a place of public entertainment unless the same shall in all respects conform to the provisions of this ordinance relating to the construction of theaters; provided, however, that theaters for which building permits have been issued prior to the taking effect of this ordinance, may be completed and used under the provisions of the permit and the ordinance under which the same was issued; and no theater hereafter erected or altered shall be open to the public for public entertainment of any kind until the Inspector shall have examined the same and issued and recorded in his office a written certificate signed by the Inspector, to the effect that such theater conforms to the provisions of this ordinance, or to the permit under which the same was built, and no license for any public entertainment in such theater shall be granted or issued except upon presentation to the City Comptroller of such certificate.

Inspection and certificate required

FIRE ESCAPES

17 **Ladders, when** **Section 175.** All buildings heretofore or hereafter erected three stories in height from the lowest street or alley grade, except dwellings, shall be provided with at least one public fire escape ladder, constructed as hereinafter provided; all buildings heretofore or hereafter erected four, five or six stories in height from the lowest street or alley grade, and all buildings heretofore erected seven or more stories

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Stairway, when

in height from the lowest street or alley grade, shall be provided with at least one public stairway fire escape or enclosed fireproof stairway, constructed as hereinafter provided, and all buildings hereafter erected seven or more stories in height from the lowest street or alley grade, shall be provided with at least one public enclosed fireproof stairway, constructed as hereinafter provided.

Number required

176

Section 176. All buildings more than two stories in height from the lowest street or alley grade, hereafter erected or altered to the extent of more than 50% of their original cost, shall be provided with at least one public fire escape ladder, stairway fire escape or enclosed fireproof stairway, constructed as hereinafter provided, and with additional fire escapes, enclosed fireproof stairways or open stairways sufficient in number and so located that from every room or connected suite of rooms, in such building there shall be at least two of the above mentioned means of exit available without passing any open stairway, elevator shaft or open light well; provided, however, that one of such means of exit available from any room or connected suite of rooms may be a private fire escape available only for the occupants of such room or connected suite of rooms;

Provided, however, that where one of every two stairways required in a building is constructed throughout of iron, steel or masonry, or a combination of these materials, and with risers, treads and landings as required for interior stairways, but is built on the outside of the building, and has an entrance on every floor from a masonry or iron or steel balcony or loggia free and open to the outside air, and where all stair stalls, elevator shafts and other openings through the floor from the ground entrance to the roof in the interior of the building are enclosed in fireproof walls with self-closing doors, all fire escapes except one may be omitted.

Obstructions

177

Section 177. All fire escapes and enclosed fireproof stairways shall be kept clear of all obstructions whatsoever. All public fire escape ladders or stairway fire escapes shall open directly from a hall or passageway extending to the outer wall of the building, with a door or window on each floor to each fire escape in the building; provided, however, that in buildings used for office or business purposes heretofore erected, and in which no one sleeps except the janitor and his family, and in such buildings six or less stories in height hereafter erected, such fire escape ladders or stairway fire escapes may be located in such manner and position as to make the same easily and readily accessible through some passage or open room leading thereto from the main hallways, the door of which such room shall have no lock or bolt or other device whereby the same can be fastened.

Must be from halls

Doors and windows to, not locked

No door or window leading to a fire escape shall have attached thereto or connected therewith any bolt, lock, catch or other fastening device that cannot be easily opened from the inside without a key, and no door or window leading to a fire escape shall be so constructed that when open it shall obstruct any part of the fire escape or balcony.

Height of door and window sills

No window or door leading to a fire escape shall have a sill more than 24" above the floor or an opening less than 30" high and 24" wide in the clear.

Passing windows

In all cases where a fire escape passes a window in an elevator or other shaft, such window shall consist of a metal frame and sash and wire glass. All fire escape ladders and stairway fire escapes shall be constructed entirely of wrought iron and steel.

Must be kept painted

All exterior fire escape ladders or stairway fire escapes and all balconies, hand rails and grille work shall be at all times kept painted with an efficient paint to prevent rusting.

Ladder fire escapes, construction of

17

Section 178. Fire escape ladders shall have side rails ⅜"x1½" in dimensions, and placed not less than 14" apart, and rounds ⅝" in diameter, placed not more or less than 14" apart and passing through the side rails and well headed.

The ladder shall extend from the height of 9′ above the ground to a distance of 2′ above and over the fire wall, and shall be placed parallel with and not less than 6" from the wall of the building, and there shall be a hinged or other efficient form of extension to all ladders where the first balcony is more than 12′ from the ground and is so situated that a fixed ladder would interfere with doors or windows below, which extension shall reach from within 9′ of the ground to the first balcony.

Balconies not less than 2′ 6" wide and extending the full width of the window or door and width of the ladder space, shall be constructed on each floor at each ladder, with floors made strong enough to carry a load of 100 pounds to the square foot, which floors, in case the opening from the building is a doorway, shall be on the level with the sill of the door, and in case the opening is a window shall be 1′ below the window sill. Ladder openings in floors of balconies shall be not less than 20"x24". The floor rail of all balconies shall be of ⅝"x2" wrought iron or its equivalent, and shall be supported by braces ½"x2". Hand rails of balconies shall be made of iron or steel not less than ½"x1½", or of angle iron of equal strength, securely fastened together and to the wall, and not less than 3′ above the floor of the balcony, and braced every 5′ with braces extending not less than 4" outside the uprights. The space from the hand rail to the floor shall be filled with grille work or additional rails and uprights.

All ladders and balconies, including brackets and hand rails, shall be securely fastened to masonry buildings by means of bolts or rods at least ⅝" in diameter, running through the entire thickness of the wall and fastened on the inside with nuts or heads over 4" washers; on wooden buildings they shall be fastened to studs by means of lag bolts or wood screws at least ½" in diameter and 4" long, and shall be of sufficient strength to sustain a live load of 100 pounds to the square foot.

Stairway fire escapes, construction of

179 **Section 179.** Stairway fire escapes shall lead from within 9' of the ground to the top floor, and shall have a fire escape ladder from the top floor to 2' above and over the fire wall; provided, that where a stairway fire escape is over an alley the lower balcony shall be placed not less than 12' above the ground, and a fire escape ladder shall extend from within 5' above the lower balcony to within 9' of the ground.

Such stairways shall be not less than 2' wide in the clear, and shall be provided with balconies 4' 2" wide, not more than 12' apart perpendicularly and at each floor level, placed and constructed as required for ladder balconies, except that the bolts securing the brackets to the wall shall be at least ¾" in diameter, and the entire outer side of the stairway and balconies from the top to the bottom shall be protected by wire netting of 3-16" wire, or strong grille work having a mesh of not greater than 4", or by sheet or plate iron or steel, built 4' above the balcony floor and 4' perpendicularly above the outer edge of the steps of the stairs, and all stairways shall also have a strong hand rail on the inner side 3' perpendicularly above the center of the steps.

Treads of stairways shall not be less than 6" wide and the run shall not be less than 6", and risers shall not exceed 12". Stringers for stairs shall be of 6" steel channels weighing not less than 8 pounds per foot, or of steel plates 6"x¼", stiffened by a 2½"x 2½" angle bar ¼" thick, fastened to stringers with not less than ½" rivets, spaced not more than 6" from center to center. Treads shall be formed of five ½" iron rods or bars, or of diapered steel plates securely fastened to stringers, with two bolts or rivets at each end of treads.

Stairways shall be securely fastened to the balconies and of sufficient strength to sustain a live load of 100 pounds to the square foot.

Enclosed fireproof stairways

180 **Section 180.** Enclosed fireproof stairways shall be constructed next to an exterior wall and not more than 30' from a street or alley line, and shall open directly upon a street or alley or into a fireproof passageway extending to such street or alley, which passageway shall not be less than 3' in width and 7' in height in the clear, and not over 30' in length, and shall have no opening except to the stairway and street or alley.

Such stairways shall be enclosed throughout their entire height by a masonry wall not less than 4" in thickness, and all windows of such stairways shall have metal sash set in metal frames and glazed with wire glass.

Such stairways shall have at each floor a fireproof door not less than 2′ 6″ in width and 6′ in height, opening from a public hall or passageway into the stairway, except that the lower door of such stairway shall open outward from such stairway upon the street or alley or into the fireproof passageway above mentioned.

All doors shall be kept closed and shall be provided with self-closing devices, which shall at all times be kept in efficient repair, and no such door leading into a fireproof stairway shall have attached thereto or connected therewith any bolt, lock, catch or other device that cannot be easily opened from the outside of such stairway without a key, and no lower door leading out of such stairway shall have attached thereto or connected therewith any fastening device that cannot be easily opened from inside such stairway without a key. Such stairways shall be provided with stairs leading from such street or alley floor to the roof of the building, which stairs shall be not less than 2′ 6″ wide in the clear from the roof to the sixth floor from the top and not less than 3′ wide in the clear from the sixth floor from the top to the street or alley floor, and shall have landings not less in width than the width of the stairs at each floor, and a landing leading thereto from each door of sufficient width to prevent the door when open from obstructing the stairs or landing.

Such stairs shall have a run of not less than 7″ and a rise not more than 9″, and shall be provided with a continuous hand rail on both sides, except at doorways, not less than 3′ in height above the center of the steps. Said stairs and landings shall be constructed throughout of masonry or of iron or steel, and shall be at all points of sufficient strength to sustain a live load of 100 pounds to the square foot.

Stand pipes

181

Section 181. Every building heretofore or hereafter erected, four stories or more in height above the lowest street or alley grade, shall have at least one galvanized wrought iron stand pipe for each separate division of the building, situated not more than 1′ from the fire escape on an exterior wall and extending from 4′ above the ground to and above the roof, and provided at each floor and on the roof with branches with good valves and at the bottom with an automatic Siamese inlet, all of proper dimensions to connect with the hose of the Fire Department. There shall be one such stand pipe for each public fire escape. The dimensions of stand pipes shall be as follows: 5″ diameter for 4-story buildings, with a two-way connection at the bottom; 5″ in diameter for buildings from five to ten stories in height with a three-way connection at the bottom, and 6″ in diameter for buildings over ten stories in height, with a four-way connection at the bottom.

Fire escape placards

Section 182. The owner of any building more than two stories in height from the lowest street or alley grade, heretofore or hereafter erected and used or occupied as a hotel, lodging house, apartment house or flat building, or the agent having charge thereof, shall at all times keep conspicuously posted in each and every room and hallway of such building when used as a hotel or lodging house, and in each and every public hall of such building when used or occupied as an apartment house or flat building, a white placard not less than 4"x6", printed in red in conspicuous type, and giving full information as to the location of each fire escape in such building and the means of reaching the same, and directions to be observed by tenants in event of fire on the premises, and distinctly stating that a red light indicates the location of a fire escape. 182

Fire escape lights

Section 183. The owner or the agent having charge of any building more than two stories in height from the lowest street or alley grade, heretofore or hereafter erected and used or occupied as a hotel, lodging house, apartment house or flat building, shall cause to be placed and maintained at the end of each hall leading to or at the entrance of each room through which it is necesasry to pass in order to reach any fire escape, a red light, which shall always be kept burning at night and which shall be on a separate service, and shall also cause to be posted and maintained on the door of every room through which it is necessary to pass to reach any fire escape, a conspicuous notice directing persons to pass through such door for the purpose of reaching the fire escape. 183

BASEMENT PIPES FOR FIREMEN

Section 184. In all buildings heretofore or hereafter erected in the City of Seattle, any cellar, basement or sub-basement of which is intended to be used, or shall be used for the storage of goods or merchandise, there shall be provided through the center of each division of such cellar, basement or sub-basement, and also every 40′ across the width where such cellar, basement or sub-basement is not subdivided by brick, stone or concrete walls without openings, three 2½" interior diameter iron pipes, each ending in a turn to which is attached a distributing nozzle, one of which nozzles shall be located midway between the front and rear walls of such cellar, basement or sub-basement, one midway between the central nozzle and the front wall and one midway between the central nozzle and the rear wall, and which lines of pipe shall be so arranged that they shall project together through the wall of the building above the sidewalk or pavement a sufficient distance to allow the Fire Department to connect hose therewith, and each shall be provided with an elbow, a Seattle standard 2½" female coupling, a screw plug and a chain, the pipe connecting with the nearest nozzle to be placed on the right; that with the central nozzle in the center; and that with 184

353007A

When not required

the farthest nozzle on the left; provided, that in any cellar, basement or sub-basement where the said system of three pipes with distributing nozzles is installed in the center of each division, or every 40′ across the width where not subdivided, but where said pipe system is directly connected with a main of the city water system, and properly maintained, and where in any cellar, basement or sub-basement there is a complete automatic sprinkler system so constructed as to protect every square foot of floor area and to operate at a temperature of 165° Fahrenheit, connected with a water supply at all times under pressure, and with a two-way Siamese connection located at some point outside the building convenient for the use of the Fire Department and fitted with Seattle standard female couplings, screw plugs and chains, the provisions of this section shall not apply.

FIRE SHUTTERS

(See Secs. 189 and 2)

Section 185. All buildings hereafter erected in the Second Building District adjoining the Third Building District, unless separated by a street 60′ or more in width, shall be provided on the side or sides facing the Third Building District, with exterior fire doors or shutters of steel or iron, or shall have all windows of wire glass set in metal frames.

DIVISION WALLS

In stores, factories, etc.

Section 186. All buildings to be used as stores, factories, warehouses or office buildings, shall be divided by masonry division walls, so located that the floor area in any space so formed shall not exceed the number of square feet indicated in the following table:

	Class			
	"A"	"B"or"C"	"D"	"E"
On open corner or through lots	20,000	15,000	10,000	8,000
On interior lots	18,000	13,500	9,000	7,200

Provided, however, that the area between fire walls may be increased 50% over that above specified when the height of the building does not exceed 60′ and 33 1-3% when the height of the building exceeds 60′, in all buildings which are completely equipped with an independent system of automatic galvanized iron sprinkler for each 14,000 square feet of ground floor area or fraction thereof, so constructed as to protect every square foot of floor area in such building, and to operate at a temperature of 165° Fahrenheit, and connected with a tank or tanks having a capacity of not less than one gallon to each square foot of ground floor area of such building, located on the roof of such building and at all times filled with water; said sprinkler system being also connected with a galvanized iron pipe leading to the outside of the building, and there provided with automatic Siamese inlets, which pipe and inlets shall be of the dimensions and numbers required for stand pipes on buildings of similar heights.

In hotels, apartment houses, etc.

187

Section 187. In all buildings more than two stories in height, used in whole or in part as hotels, apartment houses, flat buildings, lodging houses, tenement houses or detention buildings, unless they be of Class "A" construction, there shall be division walls not more than 60′ apart; such division walls shall be of masonry in Class "B" or "C" buildings, and all masonry division walls shall extend 3′ above the roof; where not required to be of masonry such division wall, if not more than 65′ in height, may be of 2″x4″ or 2″x6″ studs placed side by side vertically, breaking joints, and thoroughly spiked. No joist, girder or floor shall pass through or into such solid stud division wall, and no openings other than those required for the continuation of public halls or corridors shall be made in division walls required by this section. All solid stud division walls must be lathed and plastered or metal covered on both sides. All division walls shall continue through attic spaces.

In case large rooms in any story prevent the continuity of the division walls herein required, such wall may be omitted on that story if the floor above and below the said large room be constructed double, with two layers of 30-pound asbestos or equivalent fire-stop between.

Where such division walls cross halls or passageways, all openings shall be provided with automatic, self-closing, sliding, fireproof doors, which will operate at a temperature of 165° Fahrenheit.

FIRE DOORS

188

Section 188. All buildings heretofore or hereafter erected shall have on each side of all openings through division walls, or through exterior or party walls into adjoining buildings, wooden tin clad self-closing fire doors, constructed of two thicknesses of matched dry lumber ⅞″ thick, crossed at right angles, and nailed with clinched nails and completely covered with tin plates not larger than 10″x14″, with lock joints hammered down over all nail heads, and with all hinges, hangers, latches and appurtenances bolted to the door after tinning, and all tracks and stops bolted through the wall or into the wall with expansion bolts, and all eyes or lugs built into the wall. All such doors shall be hung on iron or steel eyes, hinges or tracks securely fastened to the wall, independently of any woodwork.

Sliding doors shall be hung with iron or steel trucks on an iron or steel track inclined ¾″ to 1′, and shall when closed rest not more than ½″ from the wall, and shall overlap on the top and sides at least 3″ and on the bottom 1½″ against a brick, stone, concrete or iron sill.

Swinging doors shall shut into a brick rabbet in the wall or into a 3″x3″x¼″ angle iron rabbet secured through the wall by 1¼″x¼″ iron bars, spaced not over 24″ apart, or shall overlap the wall not less than 4″ at sides and top.

All such siding and swinging doors shall at all times be provided with an efficient automatic self-closing device, which will operate at a temperature of 165° Fahrenheit.

FIRE SHUTTERS

(See Secs. 2 and 185)

Section 189. Whenever any building shall be provided with exterior fire shutters above the first story, such shutters shall be securely fastened to the building, and so hung as to be readily opened or closed from either the inside or the outside, and all fire doors and shutters to openings on the first floor shall be securely hung, and at least one of such fire doors or shutters on the front, on either side, if any, and in the rear shall be so fastened that it can be opened from the outside by firemen.

GARAGES

Section 190. All garages, except as hereinafter provided, shall be separated from portions of the same building used for other purposes by fireproof walls, floors and ceilings.

Garages to accommodate not more than two automobiles not kept for hire and located at least 10′ from any other frame building, may have in one upper story or adjoining on the ground floor, rooms in area equal to dimensions of garage, with plastered walls and ceilings, if separated from garage by construction equivalent to that herein required for Class "C" buildings and provided with exits separate from the garage.

No garage shall be located in any building containing a school or place of assembly or detention.

No garage shall be directly heated by stoves or lighted by other means than incandescent electric lights.

FIRE MARSHAL'S DUTIES

Section 191. It is hereby made the duty of the Fire Marshal to inspect and examine all buildings heretofore or hereafter erected, for the purpose of ascertaining whether fire escapes, stand pipes, hose connections, sprinkling apparatus, fireproof walls, partitions and doors, smoke ventilators, and fire resisting or fire fighting apparatus is installed and maintained as required in this ordinance, and for the purpose of making such inspection the Fire Marshal shall at all reasonable times have the right to enter all buildings, and it shall be unlawful for any person to obstruct or interfere with the Fire Marshal in the performance of such duties.

Section 192. Whenever any building heretofore erected is used or occupied for any purpose which, under the provisions of this ordinance would require a building hereafter erected and used for such purpose to be provided with certain means of exit, fire escapes, stand pipes, hose connections, sprinkling apparatus, fireproof walls or partitions, fireproof doors, smoke ventilators, or fire resisting or fire fighting apparatus of any kind, and such building is not provided with the above mentioned means of fire protection, and is, in the opinion of the Fire Marshal, by reason of the lack of such means of fire protection, or by reason of its construction, or the purposes for which it is used, dangerous to persons or property, or unsafe for the purposes for which it is used, without the installation and maintenance of means of fire protection in addition to or different from those, if any, already provided, and whenever any building hereafter erected and provided with the minimum means of fire protection as required in this ordinance, is, in the opinion of the Fire Marshal, by reason of its construction or the purposes for which it is used, dangerous to persons or property, or unsafe for the purposes for which it is used, without the installation and maintenance of additional means of fire protection, it shall be the duty of the Fire Marshal to determine the kind, character, number and location of the means of fire protection which will render such building safe for occupancy, and to notify the owner, or the agent in charge, of such building, in writing, to provide such building with the necessary means of fire protection to render it safe, which means shall be clearly specified in such notice, which notice shall be dated and signed by the Fire Marshal, and shall specify the time within which such building shall be provided with the required means of fire protection, and shall state that if the owner, or the agent in charge, of such building, deem the requirements of the Fire Marshal, or any of them, unnecessary, he shall have the right, within 10 days from the service of such notice, to appeal therefrom to the Board of Public Works.

May order additional safeguards against fire

Appeal from Fire Marshal

The person entitled to take such appeal shall, within the time specified for taking an appeal, file with the secretary of the Board of Public Works a written notice of appeal, stating the notice and requirements appealed from and the reasons for taking an appeal, and shall serve a copy of such notice of appeal upon the Fire Marshal.

Upon the filing of such notice of appeal the Secretary of the Board of Public Works shall set a date for hearing thereon, which shall not be less than 10 nor more than 20 days from the time of filing such notice of appeal.

At the time of such hearing the Fire Marshal shall appear before the Board of Public Works and state his reasons for requiring such building to be provided with means of fire protection and the particulars wherein he considers said building unsafe, and may produce witnesses or other evidence in support thereof, and the person appealing shall be permitted to controvert the statements or evidence of the Fire Marshal by any competent evidence.

Upon submisison of all the evidence and after the arguments of counsel, if any, the Board of Public Works shall determine whether the requirements of the Fire Marshal are in whole or in part reasonably necessary for the protection of persons or property, or to render such building safe for occupancy, and shall enter its findings in the premises of record, and make an order directing the person taking the appeal to install and thereafter maintain such means of fire protection as in the reasonable discretion of the Board of Public Works, are necessary for the protection of life and property, and to render such building safe for occupancy.

Such order shall state the time within which such means of fire protection shall be installed, and shall be entered upon the records of the proceedings of the Board of Public Works, and a copy thereof served upon the person taking the appeal; and it shall be unlawful for the owner, or other person in charge, of such building, to fail, refuse or neglect to comply with such notice of the Fire Marshal, or, in case of an appeal, with such order of the Board of Public Works within the time therein specified.

In case the owner, or other person in charge of such building, shall fail, refuse or neglect to comply with such notice or order, it shall be unlawful for any person, after the expiration of the time specified in such notice or order, to use or occupy any portion of said building for any purpose requiring such means of fire protection.

Each day that the owner, or other person in charge, of such building shall fail, refuse or neglect to install such means of fire protection after the time specified in such notice or order, and each day that any person shall continue to occupy any portion of said building as hereinafter prohibited, shall be deemed a separate offense.

ALTERATIONS AND REPAIRS

Frame buildings 1st and 2d Districts

Section 193. No alterations or repairs other than those rendered necessary by condemnation or regrading of streets, shall be made to any frame building existing in the First or Second Building Districts at the time of the taking effect of this ordinance, except as in this section provided. Alterations or repairs may be made of such material as required in Clas "D" buildings, for such purposes, but in no case shall any such alterations, or series of alterations, made within a period of 12 months, exceed in cost 20% of the value of such building, and provided that all roofs shall, when repaired, be covered with incombustible material, and all partitions, walls and ceilings shall, when repaired, be lathed and plastered.

Frame buildings 3d District

Section 194. Alterations and repairs may be made to buildings in the Third Building District with like material and construction as required by this ordinance for new buildings, provided that within three blocks of the boundary of the Second Building District all roofs shall, when altered or repaired, be covered with incombustible material, except that shingle roofs may be reshingled to the extent of 40% of their area in any period of 12 months at any time within five years from the taking effect of this ordinance, or before October 26, 1912, and partitions, walls and ceilings shall, when repaired, be lathed and plastered.

B or D buildings 1st District

Section 195. No alterations or repairs, other than those rendered necessary by condemnation or regrading of streets, shall be made to a Class "B" or "D" building existing in the First Building District, at the time of the taking effect of this ordinance, except as in this section provided. 195

Alterations which do not affect the columns, girders, bearing walls or partitions may be made with such material and construction as required in Class "B" buildings for like purposes, and alterations which change any existing columns, girders, bearing partitions or walls, or increase the loads thereon, may be made, if all interior loads shall be transmitted to the foundation by columns, girders and walls as required for Class "B" buildings; provided, however, that no such building shall be increased in height to more than seven stories above the lowest street or alley grade adjoining such building; and provided further, that when any such building is to be altered and different portions thereof are to be used for purposes requiring, in new buildings, a different class of construction, all floors and walls separating such different portions shall be of masonry, and such building shall be made with like material as the original construction; provided, however, that all roofs, dormer windows, bay windows, cornices, towers, spires, ventilators, pent houses, balconies, mouldings and other like appendages shall, when repaired, be covered with like material and construction as required by Section 107 hereof, and all partitions, walls and ceilings shall, when repaired, be lathed and plastered as required in Class "B" buildings; provided, however, that this section shall not be construed as requiring the lathing and plastering of refrigerators or cooling rooms.

Class A buildings

Class C buildings

Section 196. Buildings of Class "A" erected prior to the taking effect of this ordinance shall have alterations or repairs made with like material and construction as required by the provisions of this ordinance, for new buildings of the respective classes, and all Class "C" buildings heretofore erected shall have all alterations or repairs made with material and construction equal in strength and fire-resisting qualities to that required for new buildings of Class "C," provided, however, that no Class "C" buildings in the First Building District shall be increased in height to more than five stories above the lowest alley or street grade. 196

Class B and D buildings

All other masonry buildings heretofore erected in the Second Building District, if more than four stories in height, shall have all alterations or repairs made with material and construction as required for Class "B" buildings, and if four stories or less in height, or of any height in the Third Building District, may be altered or repaired with material and construction as required for Class "D" buildings.

Condemnation for public use—alterations

Section 197. Whenever any part of any existing building is taken for public use by condemnation, the remaining portion of such building may be repaired with the same material or materials of the same or similar kind to those of which such remaining portion is constructed, or, if there is sufficient ground on the same lot or premises upon which such building exists, the same may be moved as far as may be necessary to clear that portion of the lot or premises taken for such public purpose.

Alterations on account of regrading

Whenever any street is regraded in such manner as necessitates the adjustment of existing buildings to the new grade, such buildings may be raised, lowered or have stories added above or below the same, provided such additional stories do not increase the height of such building or the number of stories beyond that allowed by this ordinance; and provided, further, that in the First and Second Building Districts any such additional lower story or stories shall have masonry walls as required for new buildings in such districts; and provided, further, that buildings of frame construction in the First and Second Building Districts, in case of condemnation or regrade, may be moved elsewhere outside of the First or Second Building Districts.

Appraisal of fire losses

Section 198. When any building, other than a Class "A" building, heretofore erected and existing at the time of the taking effect of this ordinance within the First or Second Building Districts, shall be damaged by fire or the act of God, it shall be the duty of the Superintendent of Buildings, within 24 hours after such damage occurs, to visit and inspect the premises where such building existed, and, within three days thereafter, to make an estimate of the actual value of such building at the time such damage occurred and of the amount of damage sustained by such building, and enter such estimates in the records of his office, and he shall mail a copy of such estimate to such owner in a sealed envelope, postage thereon being fully prepaid, or in case the name and address of the owner is unknown, shall post a copy of such estimate in a conspicuous place upon the premises.

Repairs permitted after damage by fire

In case the estimated damage to buildings having masonry walls, and situated within the First Building District, shall exceed 50% of the estimated value of the building, and in case the estimated damage to buildings without masonry walls, situated in the First Building District, shall exceed 30% of the estimated value of the building, it shall be unlawful for any person to repair, reconstruct, or use such building unless such building shall be reconstructed as a Class "A" building, and in case the estimated damage to buildings having masonry walls, and situated within the Second Building District, shall exceed 50% of the estimated value of the building, and in case the estimated damage to buildings without masonry walls, situated in the Second Building District, shall exceed 40% of the estimated value of the building, it shall be unlawful for any person to repair, reconstruct or use such building unless such building shall be reconstructed as a Class "B," "C" or "D" building; provided, however, that if the owner of any such building shall consider that the building is not, in fact, damaged to the proportionate extent as estimated by the Superintendent of Buildings, he shall have the right to appeal from such estimate to the Board of Appeals, by filing with the Secretary of the Board of Appeals, within 10 days from the service or posting of the estimate of the Superintendent of Buildings a written statement of his grounds for appeal, which appeal shall be heard and determined in the manner provided in Section 16 hereof, and if upon the determination of such appeal the action of the Superintendent of Buildings shall be sustained by the Board of Appeals, it shall be unlawful for any person to proceed with the repair or reconstruction of, or to use such building.

Fire damage arbitration

Demolition of buildings

199

Section 199. Whenever any building shall be demolished, the roof and each upper story shall be completely removed before the demolition of the next lower story is begun, and no material in excess of 50 pounds to the square foot shall be placed upon any floor of any such building in course of demolition, and all brick, stone, timbers and other structural parts of each story shall be lowered to the ground immediately upon displacement, and all dry mortar, lime, brick dust or other fine material shall, before and during removal, be wet sufficiently to prevent it from floating or being blown into the street or upon adjoining property, and all sidewalks shall be protected by fences and scaffolds as required by the ordinances of the City of Seattle relating to the protection of sidewalks during the erection of buildings.

Dwarf partitions

200

Section 200. Dwarf partitions or screens of wood, or of wood and glass, not exceeding 8′ in height, may be constructed in any building providing the aggregate length of such partition or screens in any room does not exceed one-quarter of the sum of the lengths of all enclosing walls of said room.

If the space enclosed by such dwarf partitions or screens be covered, such covering shall be constructed in the manner required for floor construction in Class "C" buildings. Partitions exceeding 8′ in height will not be considered as dwarf partitions, and must be built in accordance with the provisions of this ordinance for partitions in the class of buildings in which they are constructed.

Balconies, interior

201

Section 201. Balconies may be constructed in rooms used for stories, warehouses, factories, workshops and offices, subject to the following conditions: There shall be not less than 8′ of perpendicular space in the clear, when the space is to be used for offices or for continuous occupation by laborers of any class. When such balconies are used for storage of goods, they shall have not less than 6′ 6″ of perpendicular space in the clear.

No balcony shall cover more than 30% of the floor area of the room in which it is constructed.

Balconies shall be so constructed as to sustain 50 pounds or more of live load to the square foot.

Balconies and stairs leading thereto, in Class "A" buildings, may be constructed with iron or steel beams and supports, with a floor of not less than 1¾″ tongued and grooved flooring, covered directly on the under side with metal or metal lath and hard plaster.

Balconies in Class "B," "C," "D" or "E" buildings may be constructed with wood floor beams and supports not less than 4″ in their least dimensions, or hung to the floor beams above with iron rods, if such floor beams are of sufficient strength to carry the added load, and the floors of such balcony may be of not less than ⅞″ matched flooring, and stairs leading to such balcony may be constructed of wood with stringers and treads not less than 1¾″ thick.

No partition shall be constructed in any balcony, except as required herein for other partitions in buildings of the class in which balcony is placed.

Temporary floors

Section 202. In all buildings having more than three stories, whether above or below the street grade, and in which permanent floors are not constructed at the time the frame or walls are constructed, not more than two stories of the frame or wall shall be constructed without constructing a temporary floor of plank laid close, for the protection of workmen or others above, below or on such temporary floors, and such temporary floors shall be constructed as the building progresses at each alternate floor, and no permanent floor of masonry shall be constructed unless there be the permanent floor or a temporary floor in the story immediately below it. 202

Floor openings to be guarded

Section 203. During the construction or alteration of all buildings more than 30′ in height, all stairways, elevator openings, flues and all other openings in the floors and roofs, shall be covered, or protected by railings or wire nettings at least 4′ in height at all times, except when such openings are being used for hoisting or lowering material. 203

Temporary stairs

Section 204. During the construction of all buildings over three stories in height, temporary plank stairs of not less than 5″ run and not more than 12″ rise, protected with hand rails, shall be constructed and kept in good repair and clear from material until the permanent stairs are constructed. 204

Material hoists

Section 205. No workman or other person shall ride up or down on any hoisting elevator used for hoisting material during the construction, alteration, repair or demolition of any building except before or after working hours, and then only when the foreman or contractor is in charge of such elevator. 205

Roofs adjoining building operations

206 **Section 206.** During the construction, alteration or demolition of any building which shall extend two stories or more above any other portion of such building or any adjoining building, the roof of such other portion or of such adjoining building and all skylights therein, shall be protected by covering said roof with planks or boards laid close to prevent injury to the roof covering, and by suspending over any skylights, on stout timbers properly secured, a stout wire netting with a mesh of not over ½", which netting shall be not less than 1′ above the glass in any such skylight, and shall be stretched taut and securely fastened to the supports.

Scaffolds

207 **Section 207.** All scaffolds erected for use in the erection, repair, alteration or demolition of buildings, shall be well and safely constructed and supported, and of sufficient width to secure the safety of persons walking thereon, or passing under or by the same, and to prevent the falling thereof, or of any material that may be used, placed or deposited thereon.

When scaffolds are 45′ or more in height, whether pole or thrust-out scaffolds, there shall be erected on the outer edge and ends an enclosure of wire netting of not more than 2" mesh, or of boards not less than ¾" thick, placed not over 1½" apart, well secured to uprights not less than 2"x4" in dimensions, fastened to planks or timbers, and resting on putlogs or thrust-outs. Such enclosures shall be carried up at least 5′ in advance over the level on which the workmen are working. The thrust-outs shall be strong enough to sustain a distributed load of 30 pounds per square foot of staging surface, and be made stronger as required if material is to be left thereon.

The flooring on thrust-outs and putlogs shall be tightly constructed with plank, and floor and enclosure shall not be removed until a like floor and enclosure is in position on the story above. If another story or other stories are being raised above any scaffold while the same is being used, such scaffold shall be covered for the full width above the workmen with well secured plank.

Safety of building appliances

208 **Section 208.** All sheds, enclosures, scaffolds, stagings, ropes, blocks, tackle, swinging scaffolds, temporary floors and stairs, and other building appliances erected or used during the construction, alteration, painting or repair of any building, shall be of good quality, adapted to the purpose for which used, erected and maintained in a workmanlike manner and subject to inspection by the Inspector.

Penalty for violating provisions of this ordinance

209 **Section 209.** Any person who shall violate or fail to comply with any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be punished by a fine in any sum not exceeding $100, or by imprisonment in the city jail for a term not exceeding 30 days, or

by both such fine and imprisonment, and each day that any person shall continue to violate or fail to comply with any of the provisions of this ordinance shall be deemed and considered a separate offense.

Buildings a nuisance, when

Section 210. In addition to the penalties provided in the preceding section for violations of this ordinance, any building or structure, or part thereof erected, altered, repaired, removed, arranged, equipped, used or occupied in violation of any of the provisions of this ordinance, shall be deemed and is hereby declared to be a nuisance, and such nuisance may be abated in the manner provided by law.

This ordinance not retroactive

Section 211. Nothing in this ordinance contained shall be construed as in anywise invalidating any permit, heretofore issued under the provisions of any former ordinance, for the erection, alteration or repair of any building, but such building may be erected, altered or repaired under such permit in accordance with the provisions of such former ordinance as though this ordinance had not been passed.

Nothing in this ordinance contained shall be construed as in anywise affecting any act done or committed in violation of any former ordinance relating to the same subject as any of the provisions of this ordinance, but such violation shall be prosecuted, and the person violating such former ordinance, if found guilty, shall be punished as provided in such former ordinance as though this ordinance had not been passed.

Nothing in this ordinance contained shall be construed as in anywise affecting any prosecution or proceedings now pending in any court for violations of the provisions of any former ordinance relating to the same subject as any of the provisions of this ordinance, but all proceedings or prosecutions now pending for such violations shall be conducted to final judgment or determination in any court having jurisdiction as though this ordinance had not been passed.

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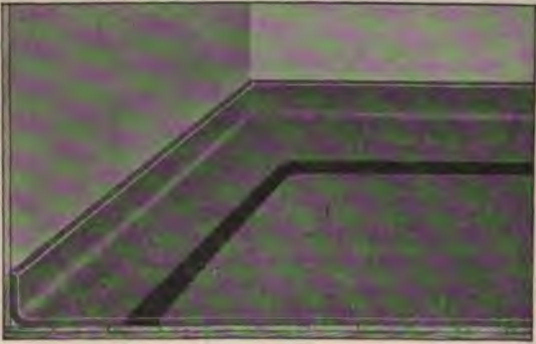

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BOARD OF APPEALS

ORDINANCE NO. 20651.

BOARD OF APPEALS

Mayor to appoint

Section 1. That there shall be and hereby is created and established the Board of Appeals in the Department of Buildings of the City of Seattle. Said Board shall consist of three members, appointed as follows:

First—One person who shall be appointed by the Mayor and confirmed by the City Council, and who shall hold office of the term of three years from the date of his appointment.

Second—One competent architect who has practiced in Seattle not less than two years, who shall be appointed by the Mayor and confirmed by the City Council, who shall hold office for the term of two years from the date of his appointment.

Third—One competent builder who has been engaged in that business for at least two years in Seattle, who shall be appointed by the Mayor and confirmed by the City Council, such appointee to hold office for the term of one year from the date of his appointment.

Vacancies, etc.

Fourth—The terms of the several members of said Board shall be three years each after the expiration of their first term.

Section 2. No member of the Board of Appeals shall sit in a case in which he is interested, and in case of such disqualification, or in the necessary absence of any member, the Mayor shall appoint a substitute from the class to which the disqualified or absent member belongs. All vacanies in the membership of the Board of Appeals shall be filled by the Mayor in the manner prescribed in the case of disqualifications or absence of a member.

Meet monthly

Section 3. The Board of Appeals shall meet once a month on stated days, or oftener at the call of the chairman or notice from the Superintendent of Buildings of any special appeal.

Mayor may remove

Section 4. Any member or members of the Board of Appeals may be removed by the Mayor for malfeasance in office, incapacity or neglect of duty.

Conditions of appeal

Section 5. Any applicant for a permit whose application has been rejected by the Superintendent of Buildings, or a person who has been ordered by the Superintendent of Buildings to incur an expense in the alteration, repair or construction of any building may, within 15 days thereafter, appeal therefrom by giving to the Superintendent of Buildings notice in writing of such appeal. Such notice, or a certified copy thereof, shall at once be transmitted by the Superintendent of Buildings to the Board of Appeals. After notice to such parties as the Board shall direct, a hearing shall be had, and the Board shall affirm, annul or modify said action of the Superintendent of Buildings.

Board may modify ordinance

The Board may vary the provisions of the building ordinances in specific cases which appear to them not to have been contemplated by said ordinances, though covered by it, or in cases where manifest injustice is done; provided, that the decision of the Board in such a case shall be unanimous and shall not conflict with the spirit of any provision of the said ordinances. The decision shall specify the variations allowed and the reasons therefor, and shall be filed in the office of the Superintendent of Buildings within 10 days after such hearing. A certified copy shall be sent by mail, or otherwise, to the applicant and a copy kept publicly posted in the office of the Superintendent of Buildings for two weeks thereafter. If the action of the Superintendent of Buildings is affirmed, such action shall have full force and effect. If the action of the Superintendent of Buildings is modified or annulled, a permit shall issue accordingly.

Decision to be posted

Fee

Any person appealing from a decision of the Superintendent of Buildings shall be required to pay to the City Treasurer the sum of ten dollars, which said amount shall be required to be paid in all cases as a fee at the time of service of notice of appeal on the Superintendent of Buildings, said amount to be returned to said appellant in case the decision of the Board of Appeals sustains his contention.

New Materials

Section 6. Materials and methods equivalent to those required by the provisions of ordinances relating to buildings may, with the written approval of the Board of Appeals, be permitted by the Superintendent of Buildings. A record of the required and equivalent material or method allowed shall be kept in the office of the Superintendent of Buildings.

Supt. to have discretionary power in certain instances

Any requirement deemed by the Superintendent of Buildings necessary for the strength or stability of any structure, or for the safety of the occupants thereof, not specifically covered by ordinances in force, shall be determined by the Superintendent of Buildings subject to appeal to the Board of Appeals in the manner hereinbefore provided.

Annual report

It shall be the duty of the Board of Appeals to submit to the City Council on or before the first of February in each year, a report giving a summary of all decisions of the Board, a list of equivalents consented to and a record of such other business as may have come before them, together with such recommendations as to desirable legislation pertaining to buildings as may to them seem advisable.

EXCERPTS FROM OTHER ORDINANCES MORE OR LESS RELATING TO BUILDING OPERATIONS

ORDINANCE NO. 4635

Section 3. Buildings to Be Legibly Numbered—Old Number to Be Removed.—The owner or occupant of any building or premises fronting upon any way, avenue, street, drive, place or square in the City of Seattle shall, upon receiving 3 days' notice from the Inspector of Street Numbering, place a correct number of such building or premises upon or over the doorway or entrance of the same in legible figures not less than 2" in length and 1" in width. If any number shall have been heretofore placed upon or over the doorway or entrance of any such building or premises which said number does not conform with the provisions of this ordinance, upon like notice from the Inspector of Street Numbering, the owner or occupant of any such building or premises shall forthwith remove and correct such number.

ORDINANCE NO. 5675

Section 1. Draining and Cleaning Private Premises, Owner and Occupant Responsible For.—Every owner and occupant of any land, building or premises within the city shall, at his own expense, properly drain and clean any and all vaults, cesspools, ditches, pipes or drains in or on any such land, building or premises used as a receptacle or conductor of filth or refuse matter. Every person owning, controlling, or occupying any such land, building or premises shall be responsible for the proper draining and cleaning thereof, and of the vaults, cesspools, ditches, pipes and drains in and upon the same, and shall constantly keep the same in a healthy condition.

ORDINANCE NO. 6702

Section 4. Fire Marshal's Duties.—It shall be the duty of the Fire Marshal to examine the dwellings and other buildings in said City of Seattle for the purpose of ascertaining whether the stoves and pipes thereto, boilers, ranges, chimney flues, and also chemicals and chemical apparatus which in his opinion may be dangerous in causing or promoting fires, and also the places where ashes may be deposited, and all places used for the storage or sale of inflammable oils, combustible stocks of merchandise or explosive compounds.

He shall personally inspect all buildings and enforce the ordinances regulating the same, and on finding them defective or dangerous, or any of the city ordinances regulating such matters violated, said Marshal shall direct the owner or occupant, either by printed or written notice, to alter, remove, or amend the same in such manner or within such reasonable time as he may deem necessary.

Section 5. It shall be the duty of the Fire Marshal to enforce all ordinances regulating fire escapes, street stand pipes, fire hydrants, fire shutters and doors, elevators, depositing refuse or combustible matter in the streets, alleys, or upon any open ground in said city, with a jurisdiction over all matters looking to the prevention of fires.

ORDINANCE NO. 15957

Section 41. Sleeping Apartments, Size and Ventilation.—It shall be unlawful for any person to use, conduct or keep any lodging house, tenement house, hotel, or any house or building containing sleeping apartments, or to allow or permit persons to occupy as sleeping apartments any room or place which shall contain less than 512 cubic feet of air or space, or less than 64 square feet of floor space for each and every person over 14 years of age lodging or sleeping in any such sleeping apartments, or less than 300 cubic feet of air or space or 40 square feet of floor space for each child under 14 years of age, or which is not provided, while in use as such sleeping apartment, with a system of ventilation in continuous operation, so contrived as to provide 25 cubic feet per minute of outer air for each occupant thereof, exclusive of air consumed by combustion.

Section 42. Occupying Unlawful Sleeping Apartments.—It shall be unlawful for any person over 14 years of age to voluntarily and continuously occupy or use as a sleeping apartment any room or place in any lodging house, tenement house, or in any house or building whatsoever, containing less than 512 cubic feet of air or space, or less than 64 square feet of floor space for each person occupying or using such room as a sleeping apartment.

Section 43. Air Space in School Rooms, Offices, Work Shops, Factories and Living Apartments.—It shall be unlawful for any person to use or permit the use of any room for the purposes hereinafter designated, unless such room shall contain the following amount of cubic feet of air space and of square feet of floor space for each person occupying said room: School room, for adults, 350 cubic feet and 20 square feet; for children, 200 cubic feet and 15 square feet; hospitals, adults, 1,000 cubic feet and 75 square feet; children, 600 cubic feet and 50 square feet; offices, work shops and factories, day workers, 300 cubic feet and 25 square feet; night workers, 480 cubic feet and 40 square feet; living apartments or dwelling houses, 600 cubic feet, outside of closets and bath rooms, for each individual occupying the apartment or dwelling.

ORDINANCE NO. 16081

Section 2. Awnings, Permit for, Required.—It shall be unlawful for any person to construct or maintain, in or over any public place, any awning, without complying with all the provisions of this ordinance in relation thereto, and obtaining and having a permit from the Board of Public Works so to do.

Section 4. Awnings, How Constructed and Maintained.—All awnings to be constructed or maintained under the provisions of this ordinance shall be constructed either of a metal frame with canvas covering, or of wire glass and other fireproof materials. The lowest point of any awning shall not be less than 8′ above the sidewalk, and no cloth, drapery, sign or other thing shall be attached to or suspended from such awning. The frames and supports of all awnings shall be securely attached to the walls of the building from which they project, by wrought iron or steel brackets or steel chains, but shall not receive their support from beneath by the use of posts or other similar devices, except as herein provided. All awnings, other than canvas covered awnings, shall be provided with metal conductors for water, draining back to the property line and connected with the sewer in the manner provided by the plumbing ordinances of the city, and shall be constructed of wire glass and other fireproof materials, reasonably uniform in appearance and ornamental in design, and shall

CITY OF SEATTLE, DEPARTMENT OF BUILDINGS.

ction 7 of Ordinance 16081, as Amended January 10, 1911, by Ordinance No. 26079.

tion 7. No area way shall be constructed or maintained under or beneath any public
ithout there be first obtained a permit so to do from the Superintendent of Buildings.
a ways shall be constructed as hereinafter provided.

area ways shall be enclosed in walls of masonry, or of masonry and steel or iron,
dewalks over said area ways constructed of like material, except as hereinafter pro-

h sidewalks must be of sufficient strength to sustain safely a live load of 300 pounds per
foot of their surface.

ewalk lights may be built in such walks if constructed of prism glass not less than one
ick nor more than nine square inches each in area, securely set in metal frames of
h equivalent to the sidewalk.

lights shall be placed in front of entrances where trucking is necessary, and all lights
e assembled and built at the time when and the place where the walk is constructed.

ntilators may be constructed in such sidewalks if securely covered by wrought iron grat-
other metal covering equal in strength to the walk, with openings not exceeding one
width, provided said ventilators do not extend into the public place more than eigh-
ches.

the case of sidewalks having a grade between 4 per cent. and 15 per cent. it shall be
ned or corrugated, as may be directed by the Engineering Department; above 15 per cent
hall be ribs, strips or similar devices, so constructed as to adequately safeguard pedes-
against slipping, and sidewalk lights in such walks shall not project more than three
t inches (3′ 6″) from the property line.

part of the enclosing walls of any area way shall project beyond the curb line, except
e footings, when at least ten feet below grade, may project two feet beyond the curb.

e walls of area ways must be so constructed as to safely withstand all the forces ex-
gainst, upon, or under them, and such walls shall not be deemed to be reinforced by
t to a building unless all the portions of said building and bracing upon which de-
ce is placed, are fire proof and properly protected against corrosion.

designing area walls, the following assumptions shall govern:

(a) That the angle of repose of the filling is not more than thirty-three degrees and forty-two minutes (2 on 3).

(b) That the weight of the filling is not less than 120 pounds per cubic foot.

(c) That the traffic load or surcharge on the surface of the public place is 200 pounds per square foot.

(d) That the total horizontal pressure in pounds per lineal foot of wall is not less than that found by the formula $\frac{W\ H^2}{7}$ where "W" equals 120 pounds and "H" equals actual height of wall in feet plus 1.66 feet.

(e) That the above total horizontal pressure acts at a point below the top of the wall equal to not more than two-thirds the height.

the construction of area walls and sidewalks, in addition to the requirements hereinbefore
th, all the requirements of Ordinance No. 17240 and all amendments thereto shall be
to apply and govern insofar as they may be applicable.

a way entrances, light wells and openings may be constructed and maintained in side-
adjacent to the lot lines of buildings of brick or stone or other first class permanent
res, now or hereafter erected three stories and over in height, above the main entrances
the following conditions: Where the grade of the street is more than twelve per cent,
s than fifteen per cent, such area way entrances, light wells and openings, may extend
e street not more than thirty (30) inches from the property line; and where the grade of
et is more than fifteen per cent, such area way entrances, light wells and openings, may
into the street not more than forty-eight (48) inches, but in no case shall such area way
e, light well, or opening extend to within less than forty-eight (48) inches of the edge of
eet or alley intersection, and all such openings shall be guarded by a substantial metal
of such strength and permanence as to afford protection to pedestrians. No coal chute
ing for fuel shall be constucted or maintained in any area way. No boiler or other dan-
apparatus or any explosive, shall be placed or stored in any area way or steps under any
place.

be inserted, Page 133, Building Ordinances, Edition 1910).

CITY OF SEATTLE, DEPARTMENT OF BUILDINGS.

Section 7 of Ordinance 16081, as Amended March 3, 1911, by Ordinance No. 26560.

No area way shall be constructed or maintained under or beneath any public place unless the same all be constructed and covered as hereinafter provided.

In the case of area ways built in connection with new buildings, it shall be required that the ans and specifications thereof be submitted to the Superintendent of Buildings for examination, and at his endorsement in writing be made upon the application for the permit hereinbefore described.

All area ways shall be enclosed in walls of masonry, or of masonry and iron or steel, with side-lks over said area ways constructed of like material, except as hereinafter provided.

The walls of area ways must be so constructed as to safely withstand all the forces exerted ainst, upon, or under them, and such walls shall not be deemed to be reinforced by bracing to a joining unless all the portions of said building and bracing upon which dependence is placed, are proof and properly protected against corrosion.

In designing area walls, the following assumptions shall govern:

(a) That the angle of repose of the filling is not more than 33° 42′. (2 on 3).

(b) That the weight of the filling is not less than 120 pounds per cubic foot.

(c) That the traffic load or surcharge on the surface of the public place is 200 pounds per square foot.

(d) That the total horizontal pressure in pounds per lineal foot of wall is not less than that found by the formula $\frac{W\ H^2}{7}$ where "W" equals 120 pounds and "H" equals actual height of wall in feet plus 1.66 feet.

(e) That the above total horizontal pressure acts at a point at one-third the height of the wall.

All area walls located at the curb line shall be at least 17″ thick at the top.

Walls depending solely upon their mass for stability, commonly called "gravity walls" shall be reased in thickness from the top downward not less than 6″ in every 24″ by being battered on ir exposed face. If there be cross walls of masonry at least 8″ thick, spaced not over 20 feet art and so built as to substantially brace the area wall, the area way wall shall be battered at e 3″ in every 24″. Such increase in thickness may be secured by "stepping or offsetting" the ll provided its strength and resistance against overturning be maintained equal to that of the ered wall hereinbefore described. All such walls shall rest upon footings 50% wider than the base he wall and not less than 8″ high nor reduced more than 8″ for each foot of height of the footing.

In the construction of area walls and sidewalks, in addition to the requirements herein set forth the requirements of Ordinance No. 17240 and all amendments thereto shall be deemed to apply and en in so far as they may be applicable.

Sidewalks over area ways shall be of sufficient strength irrespective of the top 1″ of their thick-ss to sustain safely a live load of 300 pounds per square foot of their surface.

Concrete used in arches or reinforced walks shall be mixed in the proportion of 1 barrel of cement, bic feet of sand and 16 cubic feet of gravel. The wearing surface shall consist of 1 part cement 1½ parts of sand, and shall be ¾″ thick, colored to a uniform color with ¾ of a pound of lamp-ck to 1 barrel of cement.

There shall be at least 4″ of concrete and topping inclusive, in the clear between structural or nforcing steel and the surface of the walk.

Prism lights shall not be over 3″ square and not less than 1″ thick and when set in the walk grades exceeding 8% shall have at least 3″ of cement in the clear between the lights at right gles to the curb, raised ⅛″ above the surface of the walk.

Ventilators may be constructed if securely covered by a wrought iron grating or other substantial tal covering with openings not to exceed 1″ in width and placed next to the property line and not tending more than 18″ therefrom.

On grades exceeding 8% lights must be placed on the property line and not exceed over 3′-6″ into walk. No lights shall be placed in front of entrances where trucking is necessary and all lights all be assembled and built at the time when, and the place where the walk is constructed.

Area way entrances, light wells or similar openings, but not including openings for sidewalk ele-tors, may be built in sidewalks on streets having a grade exceeding 12%, to facilitate the use and cupation of sidewalk areas or basements in connection with masonry buildings 3 or more stories in ight. No such opening shall exceed 30″ in width from the property line, nor shall approach an ey or street nearer than 36″. All such openings shall be guarded by metal railing of such strength will adequately protect the public.

Openings for fuel, capable of being covered by a single door or cover, and in accordance with andard drawings furnished by the City, shall be allowed to be maintained as provided for elevator s under Section 10 hereof. A metal guard shall be attached to said door or cover in such a man-r as to raise and lower automatically with the door or cover.

No boiler or other dangerous apparatus or any explosive shall be placed or stored in any area way space under any public place.

(To be inserted, Page 133, Building Ordinances, Edition 1910).

project as nearly horizontal from the building to which they are attached as is practicable, and shall be well lighted by electricity, according to the directions of the Board of Public Works, and shall project from the property line not more than 9'; provided, that such awnings erected over the entrances of assembly halls, theaters, hotels, railway stations or department stores may project to the curb line. The roofs of all such awnings shall be of wire glass, and in case of awnings over the entrances to theaters and similar buildings, above referred to, where the awnings extend to the curb line, the use of not to exceed two ornamental metal posts may be permitted at the curb line. Whenever any assembly hall, theater, hotel, railway station or department store is altered or reconstructed to be used for business or other purposes, the awning over the entrance to said building extending to the curb line shall be removed and made to conform to the restrictions and rules governing the construction of such awnings in front of business and other property, as herein provided. In the wholesale district awnings under the same general provisions as apply in front of places of retail business may be constructed to the curb line, with or without sustaining posts, in the reasonable discretion of the Board of Public Works. Plans and specifications shall accompany all applications for permit, and the Board of Public Works shall not issue a permit unless this provision is complied with.

Section 5. Area Ways, Permit for, Required.—It shall be unlawful for any person to construct or maintain, in or under any public place, any area way, area way entrance, area way opening or light well, without complying with all the provisions of this ordinance in relation thereto, and obtaining and having a permit from the Board of Public Works so to do.

Section 7. Area Ways, How Constructed and Maintained.—No area way shall be constructed or maintained under or beneath any public place, unless the same shall be constructed and covered in such manner and with such material, and of such strength as hereinafter provided. A brick, stone or concrete retaining wall shall be constructed at the curb line, not less than 17" thick on top, and increased 4" in thickness for every 4' of depth, resting on footings 50% thicker than the base of the wall, and not less than 8" high or reduced more than 6" for each foot of height of the footing. Cross walls of brick, stone or concrete at least 12" thick shall be constructed every 20', or when cross walls cannot be constructed the retaining wall shall increase 4" in thickness for every 2' in depth. Concrete used in arch or reinforced walks shall be mixed in the following proportion, viz.: 1 barrel of cement, 8 cubic feet of sand, and 16 cubic feet of gravel. The wearing surface shall consist of 1 part cement and 1½ parts sand, and shall be ¾" thick, colored to a uniform color with ¾ of a pound of lampblack to 1 barrel of cement. Where "I" beams or expanded metal is used, there shall be at least 4" of concrete and topping in the clear between the iron and surface of the walk. Reinforced walks in all cases shall not be less than 6" thick, including concrete and topping. Arches constructed to carry walks shall be at least 4" thick at the crown of the arch for a 4' span or less, and shall be increased 1" at the crown for every additional foot of span. The spring of any arch shall not be less than 1¼" for every foot of span. All brick arches shall have two courses of hard-burnt brick laid on edge in cement mortar. No brick arch shall have a greater span than 8'. Where the walk surface and arch is constructed in one monolythic mass, the thickness or the crown of the arch shall be increased 1" over the figures given above for carrying arches. All area way sidewalks must be designed to carry a safe load of 350 pounds to the square foot, exclusive of material, and wherever construction is not familiar to the Board of Public Works tests must be made to the satisfaction of the Board. Prism lights shall not be over 3" square and not less than 1" thick, and when set in the walk on grades exceeding 8% shall have at least 3" of cement in the face of the walk. Ventilators may be constructed if securely covered by wrought iron gratings or other substantial metal covering, with openings not to exceed 1" in width, and placed next to the property line and not extending more than 18" therefrom. On grades exceeding 8% lights must be placed on the property line and not extend over 3' 6" into the wall. No lights shall be placed in front of entrances where trucking is necessary, and all lights shall be assembled and built at the time when and the place where the walk is constructed. No area way entrance, light well or opening, except sidewalk elevators or doors, constructed and maintained as provided for in this ordinance, shall be constructed or maintained, except as hereinafter provided. In that certain district lying between Union Street on the north, Ninth Avenue on the east, Yesler Way on the south and Post Street and Post Street produced on the west, area way entrances, light wells and openings may be constructed and maintained in sidewalks adjacent to the lot line of buildings of brick or stone or other first-class permanent structures, now or hereafter erected, three stories and over in height above the main entrance, on side-hill streets running northeasterly and southwesterly, where the grade of such streets is more than 8%. Such area way entrances, light wells and openings shall not extend in any case over 30" from the property line, nor to within less than 30" of the edge of any street or alley intersection, and shall be guarded by a substantial metal railing of such strength as to afford protection to pedestrians. No coal chutes or openings for fuel shall be constructed or maintained in any area way. No boiler or other dangerous apparatus, or any explosive, shall be placed or stored in any area way or space under any public place.

Section 8. Sidewalk Elevators and Doors, Permit for, Required.—It shall be unlawful for any person to construct, maintain or operate in any sidewalk area, and sidewalk elevator or door, without complying with all the provisions of this ordinance in relation thereto, and obtaining and having a permit from the Board of Public Works so to do.

Section 10. Sidewalk Elevators and Doors, How Constructed and Maintained — Wholesale and Retail Districts Defined. — The words "Wholesale District" as hereinafter used shall be held and construed to mean and include that certain portion of the City of Seattle lying within the following described limits, viz.:

Beginning at the center line of Yesler Way opposite the east margin of Fourth Avenue South, and running thence south along the east margin of said Fourth Avenue South to the north margin of Jackson Street; thence east along the north margin of Jackson Street to the east margin of Fifth Avenue South; thence south along the east margin of Fifth Avenue South to the north margin of King Street; thence east along the north margin of King Street to the east margin of Sixth Avenue South; thence south along the east margin of Sixth Avenue South to the south margin of Massachusetts Street; thence west along the south margin of Massachusetts Street to the west margin of Railroad Avenue; thence northerly along the westerly margin of Railroad Avenue South to the center line of Yesler Way; thence east along the center line of Yesler Way to the place of beginning. The words "Retail District" shall be held and construed to mean and include all that part of the City of Seattle lying outside of the limits of the "Wholesale District" as above described.

Size and Location.—The maximum size of any sidewalk elevator in the "Wholesale District" shall not exceed 5′ square, and the same shall be placed immediately adjoining the curb, and when a less width than the maximum is used the said lesser width shall be placed at right angles to the curb. The sides of such elevator shall be closed with gates, and ingress to and egress from the same shall be had through gates opened so as not to obstruct travel upon the sidewalk. The maximum size of any such elevator in the "Retail District" shall be 3½′ in width and 5′ in length, and the same shall be constructed immediately adjoining the curb, and the maximum width of 3½′ shall be at right angles to the curb; provided, however, that in those cases where the area wall has been already built and there are physical conditions which render it practically impossible to place an elevator immediately adjoining the curb, the Board of Public Works may, in their discretion, after an examination of the premises, allow the frame of the elevator door to be placed not more than 15″ in from the curb, the especial conditions being properly endorsed upon the permit therefor. Within the "Retail District," instead of elevators, permits may be granted for trap doors, not exceeding 3′ in width, measured at right angles to the curb, and not exceeding 5′ in length, and constructed immediately adjoining the curb, which doors shall be opened and used for the removal of freight, only during such hours and in such manner and under such terms as are hereinafter described for the operation of elevators in said "Retail District."

When May Be Operated, and How.—No elevator in the "Retail District" shall be operated between the hours of 9 o'clock a. m. and 9 o'clock p. m., except in a case of emergency, in which case said elevators may be operated for a period not exceeding 15 minutes within the time between 9 o'clock a. m. and 12 o'clock noon, or a similar period of 15 minutes between the hours of 12 o'clock noon and 3 o'clock p. m., and during such operation there must be stationed on the sidewalk at such elevator opening a man charged with the care of such elevator, whose sole and only duty shall be to guard such elevator. Said man shall also be on duty at any and all times when said elevator is in use, whether by night or by day.

How Covered and Closed When Not in Use.—All elevators and trap doors constructed or maintained under the provisions of this ordinance shall, when not in use, be securely closed by metal doors of sufficient weight and thickness and so constructed as to sustain a safe weight of 350 pounds per square foot, and all doors and hinges shall be so constructed that their surface will lie flat with the surface of the sidewalk, and will present no obstruction to traffic whatever, and shall be so roughened as to occasion no danger whatever to pedestrians.

Section 11. Use of Street for Building Operations, Permit for, Required.—It shall be unlawful for any person to erect or maintain any staging, elevator or other structure or deposit or leave any material, machinery, or tools used or to be used in connection with the erection, alteration or repair of any building, in any public place, without complying with all the provisions of this ordinance in relation thereto, and obtaining and having a permit from the Board of Public Works so to do. * * * The Board of Public Works may, in their reasonable discretion, grant a permit to occupy such public place in accordance with the provisions of the next succeeding section. No permit issued under the provisions of this section shall be valid for a longer period than that specified in such permit, but such permit may be renewed or extended, in the reasonable discretion of the Board of Public Works, upon proper application being made therefor prior to the expiration of the time originally limited therein.

Section 13. Portion of Street Obstructed.—In no case shall any such permit allow or permit the obstruction of more than one-third of any street, including sidewalks and parking strips, nor shall such obstruction be less than 7′ from any street railway or railroad track along or over such public place, or close up any street or public place against the passage of vehicles.

Temporary Sidewalk.—In all cases where the building to be erected, altered or repaired shall be within 10′ of the marginal line of such public place, a temporary sidewalk, not less than 4½′ in width, shall be constructed on the outside of and around the material, tools or structures to be deposited or erected in such public place, and shall extend from the permanent sidewalk in front of each lot adjoining the sides of the lot on which the building is being erected. Said temporary sidewalk shall at all times be kept clear for the passage of pedestrians, except when materials are being handled over the same, and no person shall leave any material, tools, implements or machinery thereon. Said temporary sidewalk shall be constructed of 2″ plank laid lengthwise on sleepers, not less than 3″ thick, laid not more than 3′ apart, and the planks spiked to the sleepers with spikes not less than 3½″ or more than 4½″ long. The ends of said temporary sidewalk shall be laid even with the permanent sidewalk to which it is attached, and there shall be a tight board fence, not less than 6′ high, separating said temporary sidewalk from the space occupied under such permit.

Staging Over Sidewalk.—Instead of such temporary sidewalk, as hereinabove provided, there may be constructed within the permanent sidewalk area a temporary sidewalk, not less than 8′ wide, or not less than 8′ in width of the permanent sidewalk may be kept open, under a staging extending from the property line to the curb, and covered over the full width of the building at a height of not less than 10′ from the walk, with 2″ plank, resting on strong supporting joists, well fastened and braced to strong posts on both sides, and of sufficient strength to safely guard the sidewalk, taking into consideration the character of the building and the nature of the material to be carried over such staging. The supporting joists shall be placed not more than 4′ apart, and the passageway shall be enclosed on both sides by a tight board fence, of 1″ boards, to a height of not less than 6′, and said passageway shall at all times be properly lighted and kept clear from obstruction of every kind and description; provided, however, that material and tools may be carried across the same into the building.

Gutters Free from Obstruction.—All gutters shall be kept open at all times for the free flow of water.

Use of Street After First Story Erected—Conveying Heavy Material Over Staging.—When the framework of any building shall have been constructed up to and including the first story above the street or public place, the temporary sidewalk constructed in the street, as hereinabove provided, shall be removed and a temporary or the permanent sidewalk shall be constructed under the staging within the sidewalk area, as hereinabove provided, and said sidewalk under the staging shall be kept clear of all obstructions, except that building material, tools and machinery may be carried across said sidewalk into the building, or such material, tools or machinery may be hoisted above and conveyed over the staging into the building; provided, however, that in case of heavy pieces of building material, machinery or tools being conveyed over said staging, a watchman shall be employed, whose sole duty it shall be to warn pedestrians from passing beneath the point where such heavy articles are being conveyed over the staging.

Regulations in Third Building District.—In all cases, in the Third Building District, where the building is more than 10′ from the marginal line of the public place, the permanent sidewalk shall be kept open for the public, or a temporary sidewalk constructed around and outside of the space occupied by building material of structures, in the manner hereinabove provided.

Sidewalks, When Constructed—Staging, Inspection of.—The sidewalks and fences hereinabove provided for shall be constructed before building operations shall be begun. All staging over sidewalks shall be constructed subject to inspection by an inspector of buildings.

Temporary Use of Streets in Connection with Repair of Buildings—Cash Deposit Required—Inspection—Restoration of Street.—In case a permit is desired for the use and occupation of a portion of a public place for the purpose of depositing material or tools and performing work in connection with the repair of any building for a period of not to exceed one week, such permit may be granted in the discretion of the Board of Public Works, upon the applicant therefor depositing with the City Treasurer the sum of $50 to insure the removal of such material and tools within the time prescribed in such permit, and in no case shall such repair permit allow the obstruction of any sidewalk, or more than one-third of any roadway, or the deposit of any material or tools within 7′ of any street railway or railroad track; provided, however, that no such permit shall relieve the person accepting same, or any person, from liability over to the city for any damages accruing to or suffered by any person by reason of the occupation or obstruction of such public place. Upon the expiration of the permit, or sooner completion of the work, the holder of the permit shall remove all material from the street and restore the same to its former condition, and apply to the Board of Public Works for an inspection of the same. In case, upon inspection, it shall appear that all provisions of this ordinance have been complied with, the Treasurer shall return the deposit of $50 upon the presentation of the proper certificate from the Board of Public Works. In case of the failure or neglect of the holder of the permit to comply with the provisions of this ordinance, the Board of Public Works shall cause the street to be cleaned and restored and pay the costs thereof from the deposit with the City Treasurer.

Section 14. Electric Signs, Permit for, Required.—It shall be unlawful for any person to construct or maintain, in or over any public place, any electric sign, without complying with all the provisions of this ordinance in relation thereto, and obtaining and having a permit from the Board of Public Works so to do. * * * And the Board of Public Works, if they shall find that such sign can be constructed or maintained without unduly interfering with or obstructing the use of such public place, may, in their reasonable discretion, grant a permit to construct and maintain such sign in accordance with the provisions of the next succeeding section.

Section 16. Electric Signs, Attachment of.—All electric signs extending over any public place shall have two individual steel hinge attachments to each building or pole.

Weighing Less Than One Hundred Pounds, How Supported.—Signs weighing less than 100 pounds shall have one main support in the form of a bolt through the building wall, where possible anchored by a washer plate of at least 24 square inches of surface and ⅛" in thickness, unless the supporting chain or cable is located at an angle greater than 45°, in which case approved expansion bolts may be used; if the cable or chain be attached to a bolt located at a distance greater than 1′ from the building wall, said bolt shall be supported with a brace. For signs weighing less than 100 pounds the minimum size of chain allowed shall be 3-16" in diameter; where the angle of the supporting cable or chain is less than 45° the steel cable shall be 5-16" in diameter and the chain ¼" in diameter.

From One Hundred to Two Hundred Pounds, How Supported.—Signs weighing between 150 and 250 pounds shall have one main support in the form of a bolt through the building wall, where possible, anchored by a washer plate of at least 24 square inches of surface and ⅛" in thickness; if not possible, two main supports, anchored by approved expansion bolts, may be used; if the cable or chain be attached to a bolt located at a distance greater than 6" from the building wall, the bolt shall be supported with a brace. For signs weighing between 100 and 250 pounds, the minimum size of steel cable allowed shall be ⅜" in diameter; the minimum size of the chain allowed shall be 5-16" in diameter; where the angle of the supporting chain or cable is less than 45°, the steel cable shall be ½" in diameter and the chain shall be ⅜" in diameter.

From Two Hundred and Fifty to Three Hundred and Fifty, How Supported.—Signs weighing between 250 and 350 pounds shall have two main supports in the form of bolts through the building wall, anchored by washer plates at least 24 square inches of service and ⅛" in thickness; if not possible, two main supports, anchored by two approved expansion bolts each, may be used. For signs weighing between 250 and 350 pounds, the minimum size of steel cable allowed shall be 9-16" in diameter; the minimum size of chain allowed shall be ⅜" in diameter; where the angle of the supporting chain or cable is less than 45°, the steel cable shall be ⅝" in diameter and the chain 9-16" in diameter. For signs of this weight or greater, plans in detail shall be submitted, if desired, with the application, for approval or rejection of the Board of Public Works.

Weights to Be Marked on All Signs.—All signs erected under this ordinance shall have the weights marked on the sign box in plain figures.

Guys and Side Supports, Material, Size and Spread.—Signs having 30 square feet or less of side surface, and guys spread at an angle greater than 45°, shall be supported by steel cables ¼" in diameter, or chains 3-16" in diameter; signs of this area and supported by guys spread at an angle less than 45° shall be supported by steel cables ½" in diameter, or chains ⅜" in diameter. No guys shall be spread at an angle less than 25°. Where the side guys can be attached to only one side of the sign of this area, a stiff brace consisting of gas pipe ¾" in diameter, and of standard thickness, shall be used. Side guys spread at angles greater than 45° shall be fastened with approved expansion bolts in a solid brick or stone wall, or by a machine screw in an iron front, or by a lag bolt in solid woodwork.

Bolts or Screw Fastenings.—Bolts or screws shall not be fastened to window frames. Lag bolts in solid woodwork shall not be smaller than ¼" in diameter, and shall enter woodwork at least 3". Machine screws in iron front shall not be less than ½" in diameter, and shall enter clear through the iron work. Expansion bolts shall be at least ⅜" in diameter, and shall enter brick or stone wall at least 2½".

Fire Escapes, Not Obstructed.—Signs shall not obstruct or be attached to any part of a fire escape, and where any sign is hung near any fire escape, it shall be arranged to swing away from such fire escape.

Cables and Cable Fastenings.—All cables shall be provided with sleeves, and two cable clips must be provided for each cable and placed near the sleeve. Turn-buckles of suitable size shall be provided for all the side guys and for one of the supporting cables, where more than one is used.

Signs Out of Repair Must Be Rehung.—All signs now in existence that shall become dangerous or necessary to repair, shall be rehung to comply with these rules.

All Wording Illuminated—Panel Signs.—No wording will be allowed on any sign which is not illuminated. Panel signs 3'x10' will be allowed, provided they are illuminated with lights every 6" around same. If, however, this spacing does not give required candle power, more lights must be added. Small panels may be added to regular illuminated letter signs, providing 2-candlepower lights are used every 6" around outside of same.

Sign May Extend to Curb, When.—When one word requires more space than 10' in length, the sign will be allowed to extend to curb line, providing letters larger than 16" are not used. In no case will they be allowed to project further.

Flash Signs Prohibited.—No sign constructed so as to be lighted intermittently, commonly known as "flash signs," will be allowed.

Height, Length, Candlepower—Must Burn Until Midnight—Removal on Notice.—No electric sign shall be lower than 10' from the sidewalk, and shall not extend out over the same more than 10'. Each sign shall burn at least 200-candlepower until 12 o'clock every night, and shall be removed upon 30 days' notice so to do from the Board of Public Works.

Section 17. Moving Buildings, Permit for, Required.—It shall be unlawful for any person to move any building along, over or through any public place, without complying with all the provisions of this ordinance in relation thereto, and, obtaining and having a permit from the Board of Public Works so to do.

Section 18. Moving Building, Permit, How Obtained.—In order to obtain the permit provided for in the preceding section, the applicant therefor shall file with the Board of Public Works an application in writing therefor, which application shall contain an accurate description of the building desired to be moved, giving the size, dimensions and material of which it is constructed, a legal description of the premises upon which the said building is situated and of the premises to which the same is to be moved, a description of the route over which it is proposed to move the same, and a full description of the means to be employed in moving such building, and shall pay a fee of $1 to cover the cost of advertising.

Hearing on Application.—Upon the filing of such application the Board of Public Works shall set a date for hearing thereon, which shall not be less than three days from the day of filing of such application, and shall cause to be published in the official newspaper a notice of said hearing, containing a statement of the particular items set forth in said petition. At the time of said hearing, or at the time to which the same may be adjourned, all persons interested, including the owners or occupants of property along the route over which it is proposed to move said building, or the owners of any franchise for a public utility in, along or across any of the streets over or across which it is proposed to move said building, may appear and object to the granting of such permit. The Board of Public Works may hear such evidence or arguments to be subserved by the granting of such permit.

Board May Prescribe Route and Require Bond—May Refuse Permit.—After such hearing the Board of Public Works may, in their reasonable discretion, grant the permit for moving the building described in the application, along the route and by the means set forth, or along some other route or by some other route or by some other means to be designated in such permit, which permit shall fully describe the manner in, the route by and the time within which said building shall be moved, and said Board of Public Works may, as a condition precedent to the granting of such permit, require the execution and delivery to the City of Seattle of a good and sufficient bond, in an amount to be fixed by the Board, to save and protect the city harmless from all damages to the streets or other property of the city, or the Board of Public Works may, in their reasonable discretion, in case they shall find that the moving of such building will unduly interfere with the rights of the public or other persons in any public place, refuse to grant such permit.

No Permit Along Street Car Lines for More Than One Block.—And in no case shall a permit be granted to move any building along any street on which there is a street car line, for a greater distance than one block, but permits may be granted to move buildings across such streets.

O. M. CARRICK *F. E. RAUTMAN*

Rautman Plumbing & Heating Co.

CONTRACTORS

Plumbing and Heating

VENTILATING ENGINEERS

1310-1312 Arcade Way
SEATTLE, WASH.

TELEPHONE MAIN 88

PLUMBING ORDINANCE

Department of Health and Sanitation
Third Floor, Prefontaine Bldg.

M. T. Stevens, Chief Sanitary Engineer.
James McIntyre, Chief Plumbing Inspector.

Main 8500—Local 107. Independent 4100—Local 19.

ORDINANCE NO. 22839

Section 1. The word "inspector" wherever used in this ordinance shall be held to mean and include the Commissioner of Health of the City of Seattle, or his duly authorized assistants. The word "person" wherever used in this ordinance shall be held to mean and include natural persons of either sex, associations, co-partnerships and corporations, whether acting by themselves or by a servant, agent or employe. The singular number shall be held to include the plural, and the masculine pronoun to include the feminine. 1

Section 2. It shall be unlawful for any person to begin or perform any work on the construction, reconstruction, alteration or repair of any plumbing or house drainage system, or system of pipes for the conveyance, distribution or use of illuminating or fuel gas in any building in the City of Seattle, without complying with all the provisions of this ordinance in relation thereto, and obtaining and having a permit from the Commissioner of Health so to do, which permit must be at all times during the performance of such work, and until the completion thereof, posted in some conspicuous place in the building wherein such work is being done; provided, however, that no permit will be required for the removal of stoppage in soil or waste pipes, provided a cleanout is inserted as in this ordinance provided, 2 or for replacing broken fixtures, providing such fixtures conform to the regulations contained in this ordinance, nor for replacing tanks or faucets or repairing leaks in waste or water pipes.

3 **Section 3.** In order to obtain the permit provided for in the preceding section, the owner of the premises, or his authorized agent or the plumbing contractor employed to do the work shall file in the office of the inspector an application in writing for such permit, stating therein the number and kind of fixtures to be used in such work, the street and house number of the premises where the work is to be done, the name of the owner, and the name and address of the plumbing contractor, and containing an agreement that such work is to be done in accordance with the charter and ordinances of the City of Seattle.

Where plumbing is being done in several adjoining buildings or in apartment houses where the arrangement of pipes and fixtures is exactly the same in each, and all being done under one contract, one permit will be sufficient. In case city water is to be used in connection with any work for which a permit is required, as hereinabove provided, no permit shall issue until the owner of the premises shall have applied and contracted for such city water as provided by ordinance, evidence of which to be furnished by the Superintendent of Water Works, shall accompany the application for the permit.

No permit issued under the provisions of this section shall be valid for a longer period than that specified in such permit, but such permit may be renewed or extended in the reasonable discretion of the inspector upon proper application being made therefor prior to the expiration of the time originally limited therein. In case work shall not be done or completed within the time specified in the permit and no extension is granted, a new permit shall be taken out.

No permit shall be issued by the inspector until the following fees for inspection have been paid to the City Treasurer:

When the building contains from one to six plumbing fixtures, the sum of 30 cents shall be paid for the inspection of each fixture, and for each and every additional fixture thereafter installed or for which waste or vent fittings are installed, the sum of 15 cents shall be the fee for inspection.

The word "fixtures," as used in this ordinance, shall be held to mean and include all fixtures connected with drains or waste pipes that drain into and are connected with a sewer, cesspool or septic tank.

4 **Section 4.** When a permit has been issued for plumbing, gas fitting or house drainage work, the work done and the material used shall be under the supervision of the inspector at all times until its completion, and the inspector may stop any work and revoke said permit when the work being done, or the material used, is not in accordance with the provisions of this ordinance, and it shall be unlawful for any person to proceed further with said work without the written consent of the inspector.

5 **Section 5.** When a permit has been issued for plumbing, gas fitting or house drainage work, no additional work shall be put in without the approval of the inspector, and a new permit must be taken out covering all such additional work.

6 **Section 6.** When the roughing-in work of any plumbing or house drainage has been completed, and before any such work has been covered or in any way concealed from view, the same must be subjected to one of the following tests: By plugging all openings and

filling with water to the highest point, or by pressure of air of not less than 15 pounds to the square inch (on a spring gauge to the satisfaction of the Inspector, or a column of 7 inches of mercury on a mercury gauge). When work has been tested and proved perfectly tight, the inspector shall be notified that such work is ready for inspection, and it will be the duty of the contracting plumber to see that all work is left open and convenient for inspection until inspected. The Inspector shall inspect all work within three working days after having been notified that such work is ready for inspection, by causing the plumbing contractor to apply, in the Inspector's presence, one of the above tests, such tests to include all soil, waste and vent pipes, brass ferrules and soldering nipples in connection with the work.

7 **Section 7.** Any persons doing work under the provisions of this ordinance shall, when the work is ready for inspection, notify the inspector in writing, giving location of the premises and the time that the work will be ready for inspection, and if, upon inspection, the Inspector finds the work or material used is not in accordance with the provisions of this ordinance, he shall notify the person doing the work, and also the owner of the premises, by posting a written notice upon the premises and mailing a copy of the same to the contracting plumber, and such notice shall be all the notice that is required to be given of the defects in the work or material found upon such inspection.

8 **Section 8.** When work is completed and all fixtures set, the Inspector must be notified in writing that the work is ready for final inspection, and the Inspector may require a final test of either smoke or peppermint, and no plumbing work shall be used until this inspection has been made and a certificate of approval has been issued to the plumbing contractor, owner or agent.

9 **Section 9.** In case, upon inspection, as provided in the preceding sections, it shall appear that the work already done or the material used does not in all respects conform with the provisions of this ordinance, the Inspector shall order such changes in workmanship or material as will make the same conform in all respects to the provisions of this ordinance, and the Inspector is hereby authorized and empowered, in all cases of failure, neglect or refusal to comply with such order on the part of any owner, agent or occupant, to condemn the building or premises as hereinafter in this ordinance provided.

10 **Section 10.** Whenever, upon inspection, any building or premises, or any part thereof, for any insanitary cause is found unfit for human habitation, the Commissioner of Health may require the vacation of such building, premises or part thereof, and a written order shall be conspicuously affixed and posted on the building or premises, and where practicable shall be served upon the owner, agent or occupant of such premises.

11 **Section 11.** It shall be unlawful for any person to fail, neglect, or refuse to comply with the order of the Commissioner of Health, or fail to vacate premises upon being ordered so to do by the Commissioner of Health, as provided in the preceding section.

12 **Section 12.** The maintenance of any plumbing, gas fitting or house drainage system in an insanitary condition shall be deemed a nuisance, and the same shall be abated in the manner provided by law.

13 **Section 13.** The Inspector shall have free access to all buildings for the purpose of examining the same and all plumbing, gas fitting and house drainage systems therein, and ascertaining whether the provisions of this ordinance are being complied with and for such

purposes shall, at all reasonable times, have a right to enter and inspect such buildings; and it shall be unlawful for any person to prevent or attempt to prevent any such entrance or inspection, or to obstruct or interfere with any such officer while engaged therein.

Section 14. Whenever the Inspector shall find any building or premises that are being kept, maintained or occupied in an insanitary condition, or in which plumbing is being installed in violation of, or not in accordance with the provisions of this ordinance, it shall be the duty of the Inspector, and he is hereby authorized, empowered and directed to notify the owner, agent or occupant thereof to cause said premises to be made to conform to the provisions of this ordinance, which notification shall be in writing, and shall be served either on the owner, agent or occupant of such premises, or, in case the premises are unoccupied, may be posted on the premises, and it shall be unlawful for any person so notified to fail, neglect or refuse to comply with such notice.

Section 15. For the purpose of this ordinance the term "dwelling house" shall be held to mean and include any house, used by one or more persons for housekeeping, consisting of one or more rooms, having sleeping and cooking accommodations in connection.

The terms "apartment," "tenement" and "flat," shall be held to mean any suites or combination of rooms consisting of two or more rooms used for housekeeping purposes, having cooking and sleeping accommodations in connection with each; whenever two or more such suites or combinations are located in one building, whether all are located on one floor or on separate floors.

Section 16. Every factory, workshop, school, dwelling house, apartment, store, or other place where any person is permanent employed, or where people congregate daily, must be provided with suitable water closet accommodations. Factories, workshops, and stores shall have one water closet for each 20 persons or fraction thereof, of each sex. School houses shall have one water closet for each 24 persons or fractions thereof of each sex. Water closets for stores must be located in an accessible and convenient place on the premises on which the store is located. Hotels, lodging and rooming houses shall have two water closets for every 25 rooms or fraction thereof; provided, however, that if there be more than 25 rooms, one water closet must be provided for every additional 12 rooms or fraction thereof. Water closets for the different sexes must be entirely separate.

Bunk houses, dormitories, and all large unpartitioned rooms used for sleeping purposes, must have one water closet for every 25 single beds or their equivalent or fraction thereof; each dwelling house, apartment, tenement or flat must have at least one water closet and one sink for each family living in such dwelling house, apartment, tenement or flat; provided, however, that if more than 10 persons live in any such apartment, tenement or flat, there shall be one additional water closet for each 10 additional persons or fraction thereof. Water closets for apartments, tenements or flats must be located on the same floor as the respective apartment, tenement or flat they serve.

It shall be unlawful for any person engaged in improving any street or alley by grading, paving, laying conduits, gas mains, water mains, or railways, or erecting buildings on either public or private property, to not provide suitable temporary water closet accommodations, to the satisfaction of the Commissioner of Health, for the men employed by the contractor or person in charge of the work.

Section 17. General water closet accommodations for tenement or lodging houses shall not be permitted in cellars or basements or under sidewalks. All rooms in which water closets or urinals are installed must be open to the outer air by means of a window, or ventilated light shaft, provided, however, where water closets or urinals are placed in stories, one or more of which is below the ground level, or in interior rooms, a vent duct of sheet metal and artificial light may be employed instead. Windows for rooms in which water closets or urinals are installed shall not be less than one foot in width and shall have an area of not less than one-twentieth of the total floor space of the room in which said fixtures are installed; provided, however, that in no case shall such windows have an area of less than 432 square inches.

Light shafts used for the ventilation of toilet and urinal rooms shall have an area not less than one-twentieth of the combined area of the floor space of all such rooms opening therein.

Light shafts used for the ventilation of toilet rooms having skylight over, shall be ventilated by louvers, the total area of such louver opening shall not be less than the total area of said light shafts. Light shafts used for ventilating and lighting toilet rooms having more than three of their sides inclosed must have no connection with, or openings into rooms used for any other purpose. Rooms in which urinals or water closets are located shall be separated from all other rooms and hallways by substantial partitions extending to the ceiling; there shall be no opening or transom from adjoining rooms or hallways except door provided for entrance to same; provided, however, nothing in this ordinance shall prevent the use of stationary windows for lighting purposes in said partition. Doors for toilet rooms shall be provided with self-closing arrangements to keep same closed at all times when not in use. Vent ducts for rooms where water closets and urinals are located shall have an area equal to one-half of one square inch to every square foot of floor space of the room in which fixtures are located; provided, however, there shall not be allowed any vent duct less than 32 square inches in cross sectional area. Vent ducts from toilet rooms must be run separate to the outer air or to the roof, each room having a separate duct which in no case shall have any connection with, or opening into any other room except that several ducts may be connected into one ventilator at roof, such ventilator to be of an area equal to the combined area of all ducts connected thereto. Plans showing methods of ventilating all rooms and compartments of the building and location and kind of plumbing fixtures to be installed, must be filed at the office of the Department of Health and Sanitation, before a permit is issued for the installation of any plumbing or drainage.

Mechanical ventilating systems when installed for the ventilation of toilets, bath rooms and sleeping rooms, and when such appliances are completed and being operated at their normal capacities, shall be tested by the contractor or owner for volumetric efficiency in the presence of and under the direction of the Commissioner of Health or his duly qualified assistants. The architects, or the person in possession or control of the same, shall notify the Commissioner of Health in writing when the said system is complete and ready for testing and inspection.

Section 18. Plumbing fixtures must never be connected to sewer, 18
cesspool or septic tank unless a good and sufficient supply of water is furnished to thoroughly flush them at all times.

Water closets shall be supplied with water from a tank which is used for no other purpose. Each closet may be supplied from separate tanks or one general tank may be used for a number of closets. Tanks shall be arranged with float valves and be of sufficient size to deliver at least 4 gallons of water at each flushing. There shall be no direct connection between water closet bowls and house supply pipes. Flush pipes between water closets and tank shall not be less than 1¼" in diameter.

Section 19. Soil and waste pipes from fixtures in houses where city sewer is not within 300′ shall be carried to properly constructed cesspool or septic tank, such cesspool or septic tank to be constructed so as to meet the approval of the Commissioner of Health of the City of Seattle. Abandoned wells may be used as cesspools in localities where well water is not used for potable purposes, provided such abandoned wells be not located within a radius of 1,000′ from any well, the water from which is used for potable purposes; provided, however, that no cesspool or abandoned well used for such purpose be located within 15′ from any building. In case an abandoned well is to be used as a cesspool, the owner of the property shall first obtain a permit from the Commissioner of Health to use such well for such purposes. 19

Section 20. Privy sinks, pan or plug closets, iron hoppers, range or trough closets, or any closet having any mechanism in connection with the bowl forming a mechanical seal, are prohibited. Dry closets and vault closets will not be permitted where city water and sewers are within 300′, and all such dry or vault closets are hereby declared a nuisance. Water closets having trap set beneath the floor will be permitted only in outhouses. 20

Section 21. No paper other than what is commonly known as toilet paper shall be placed in any water closet or in any soil pipe. 21

Section 22. Where special fixtures are required, for which there is no provision in this ordinance, or when conditions arise that demand a deviation therefrom, the inspector may, after an examination of the premises, permit such deviation from the provisions of this ordinance as in his judgment the condition demands, and must in such case issue a special permit in writing therefor, which shall fully describe the deviation permitted, which permit shall be posted on the premises. 22

Section 23. The term "main soil pipe" shall be held to mean and include the iron soil pipe receiving the discharge from water closets connecting to the sewer, cesspool or septic tank, 2½′ outside of the building and extending in the most direct course to and through the roof. The term "waste pipe" shall be held to mean and include any pipe receiving the discharge from any fixture other than water closets. The term "main waste pipe" shall be held to mean the waste pipe connecting to the sewer, cesspool or septic tank, 2½′ outside of building and extending in the most direct course to and through the roof. The terms "branch soil" and "branch waste pipe" shall be held to mean and include any branch pipe connecting to the main line and extending either vertically or horizontally from same. For the purpose of this ordinance the term "vent pipe" shall be held to mean and include any pipe connected to any trap, soil or waste pipe for the purpose of preventing siphonage, relieving back pressure and preventing the fouling of trap seals by condensation of sewer air, and also for the purpose of creating a circulation of air through the soil and waste pipes. The terms "vented" and "ventilation" when used in reference to or in connection with traps, soil or waste pipes, will be held to mean and refer to such vent pipes as above mentioned. 23

Section 24. In all dwelling houses and all other buildings of two stories or less, the vertical main, soil and waste pipe shall be carried full size to a height of at least 10″ above the main roof, except in the case of flat roofs, used for drying purposes, and in such cases they shall extend 7′ above the roof and be suitably braced. In other dwellings, buildings three stories or more in height, the 24 vertical main, soil or waste pipe must be carried up full size through and 10" above the main roof or may be carried to a point of convergence at either of the floors where branch soil and waste pipes may be carried to different points to receive the discharge from groups of fixtures; each of these branch soil or waste pipes becoming a main line from point of convergence and must extend full size through and 10" or more above the roof. The size of these branches must be regulated according to the number and kind of fixtures discharging therein, as provided elsewhere in this ordinance, and in no case shall these branches be less than 2" in internal diameter. The main horizontal soil pipe where entering the building, and from a point 2½' outside the foundation wall must be of sufficient size to receive the discharge of all fixtures connected thereto, according to the terms of this ordinance, and may be reduced in size in proportion to the various branch lines leading therefrom. When fixtures are placed in lean-to additions or any addition where the roof is lower than that of the main building, the vent pipe or soil pipe must never terminate within 15' of any opening of the house in which fixtures are located, or any adjoining house, unless such soil or vent pipe be carried up at least 3' above such opening; but in no case shall pipes be extended more than 5' above the roof of a lean-to or addition to accomplish this purpose. When a water closet is installed in a lean-to or addition, and it be impossible to keep the termination of soil and vent pipes 15' away or 3' above openings, the main soil or waste pipe must be carried up the body of the main building and 10" above the roof and 3' above all openings; and branch soil or waste pipe shall be carried from main line to receive the discharge from fixtures; provided, however, if there be fixtures in the main building from which the main vertical soil pipe extends full size through the roof. The fixtures located in lean-to or addition, provided said fixtures connect the main line or soil pipe, need not have their main line extended full size above the roof, but all traps must be back vented, and all such vent pipes carried up clear of all openings according to the terms of this ordinance. All branch soil or waste pipe extensions 15' or more vertically from the main line or any branch line, to receive the discharge of fixtures, must extend full size through the roof. All sewer, soil and waste pipes must be run as direct as possible; changes in directions of soil and waste pipe shall be made with "Y" branches or ⅛ bends. No ¼ bends shall be used except by the consent of the Inspector.

25 **Section 25.** All cast iron soil or waste pipe must be of the grade known as "extra heavy," dipped in coal tar pitch while hot, so as to form a good, hard, uniform coating. All fittings used in connection with the same must correspond to pipe in quality and coating. All screw joint soil or waste pipe must be either wrought iron or mild steel of the grade known as "standard." All fittings used in connection with wrought iron and steel soil and waste pipe must be the regular recessed drainage fittings. All wrought iron and steel soil and waste pipe and all fittings and nipples used in connection with the same must be thoroughly galvanized inside and out. The ends of all wrought iron and steel pipe and all nipples must be reamed to remove any burr that may be caused by cutting, so as to leave a smooth, full sized interior opening before screwing home. All threads on wrought iron or steel pipes and nipples must be cut so as to screw entirely to the shoulder of the fitting. The extra heavy cast iron pipe and wrought iron or steel pipe in the main line must be extended full weight and quality to a point 1' above the water line of the highest fixture. The threads of recessed fittings must be tapped so

as to give a uniform fall to branches of ¼″ per lineal foot from fixtures toward main soil or waste pipe. All nipples, the unthreaded part of which is less than 1½″ long, shall be extra heavy pipe. All hubs, pipes and fittings must be sound and free from defects such as cracks, flaws and sand holes, or any defect that might weaken them, and it shall be unlawful for any person to install any such defective material that does not conform to this ordinance and to all parts of it, or to conceal or attempt to conceal any such defects by means of cement, paint, putty or tar, or any other substance whatever, or to refuse or fail to remove defective material upon the order of the Inspector.

All soil, waste and vent pipes shall be substantially braced, supported and fastened. Horizontal runs of iron soil, waste and vent pipe, when in filled or made ground, shall be supported by thoroughly tamping the bottom of the ditch, or by piers of either brick or concrete at every 6′ of their length; and the foot of each vertical stack of iron soil, waste and vent, when rising from the ground, shall be supported on brick or concrete piers. Horizontal runs of iron soil, waste and vent pipes above ground shall be supported on brick or concrete piers, hung to joists or fastened to walls, with substantial iron straps or hangers at every 6′ of their length; and at the foot of vertical lines rising from such horizontal runs.

All vertical stacks of iron soil, waste and vent pipes shall be supported at each floor and ceiling joist. Vertical lines of iron soil, waste and vent pipes in buildings three stories or more in height, shall have substantial iron supports at each floor and ceiling joist. Horizontal runs of lead soil, waste and vent pipe shall be supported their entire length on wooden strips or boards. Vertical lines of lead soil, waste and vent pipes shall have lead tacks, or substantial lead straps soldered to such pipe at every 2′ of their entire length and fastened to wooden supports with nails or screws.

(See Table A for required weight of cast iron soil and waste pipe.)

(See Table B for required weight of wrought iron or steel soil and waste pipe. Deviations therefrom shall not exceed 5%.)

All lead waste pipe of 2″ and less in internal diameter must be of the grade known as "D" pipe and of the weight per lineal foot shown in Table C. (Page 159.)

All joints in cast iron pipes shall be caulked joints made with oakum, well tamped, and pure lead well caulked, and no paint, varnish, putty or cement of any kind shall be put on caulked joints until tested and inspected as per Section 6 hereof. Connections between lead pipes and cast iron must be made by means of brass ferrules of the size and weights shown in Table D. (Page 159.)

Connections between lead pipe and wrought iron or mild steel pipe shall be made by heavy, brass soldering nipples, as nearly as possible the full size of the lead pipe, but in no case shall such nipples reduce the size of such pipe exceeding ⅛″.

All joints in lead pipe shall be wiped joints. All joints between lead pipe and brass ferrules, soldering nipples, and soldering unions, shall be wiped joints. All wiped joints must be made in a workmanlike manner. Trap screws in lead traps shall be inserted by means of wiped joints. No union or wiped flange joints shall be allowed in connections of waste or vent pipes that are to be concealed.

All bends and off-sets in lead pipe must be made so as to leave full sized openings, and care must be taken not to materially weaken any portion of the pipe in bending. All lead bends and traps must be of the same size and weight as the lead pipe to which they connect.

Section 26. Direct or converging soil pipes shall be increased in size as follows: When carrying not more than 20 water closets, or their equivalent, 4" in diameter, and shall be increased 1" in diameter for each additional 75 water closets, or fraction thereof; provided, however, that 3" vertical soil stacks of cast iron, galvanized steel, or wrought iron pipe may be used in dwelling houses of 2 stories or less wherein are situated not more than 1 water closet, 1 bath, 1 lavatory, 1 sink and 1 set of laundry trays; provided, however, that such 3" stack is not more than 35' in height. Horizontal runs to which such 3" vertical stack connects, must be 4" in diameter. For the purpose of this ordinance in estimating the size of soil and waste pipe, the equivalent of water closets will be estimated in accordance with Table E. (Page 159.) 26

Waste pipes receiving the discharge from fixtures shall be of the sizes shown in Table F.

Section 27. Every trap shall be effectually vented. Two inch or less-sized "P" or half-"S" trap shall be vented not more than 18" from water line of seal, provided point of connection of vent and waste pipe be not below said water line. 27

"S" traps, and ¾-"S" traps shall be vented not more than 4" from line of water seal; vents from pot traps shall be of the same size as the waste pipe leading from the same.

Section 28. When "P" traps are used on sinks, wash basins, wash tubs and other fixtures having 2" or less sized traps, also pot or drum traps having horizontal waste pipe, they may be vented by the loop or continuous vent system, provided each trap be connected to a vertical line the same size as trap, said line acting as waste pipe below point of connection and vent pipe from point of connection upward; and in case of a pot trap the vertical line shall be the same size as waste pipe from pot trap, said vertical line must be carried up 1' above water line of fixture before connecting with other vents or with main loop line. Two "P" traps or two pot traps of either size may be connected to a single vertical line, said line acting as waste pipe below point of connection and vent pipe from point of connection upward, providing said two traps connect to vertical line at same level, and provided the vertical line be one size larger pipe than traps connected thereto, and in case of pot traps the vertical line shall be one size larger than waste pipe leading from same, and providing further, that point of connection of trap and vertical line be not below water line of the traps and not more than 18" from said water line. Two 1½" traps may be connected into one 2" vertical line. Two 1¼" traps may be connected into one 1½" vertical line. Two 2" traps may connect to one 2½" vertical line. 28

This system may be carried out indefinitely for groups of fixtures placed one above the other, by adhering to sizes and increasing the main vent pipe as per Table G; provided, however, that the diameter of the main vent pipe need not exceed the diameter of the main soil pipe; vent pipes for fixtures having traps 2" and less in diameter, whether single or in groups, shall be increased in proportion according to the number of fixtures in Table G. In estimating the size of vent pipes, whether all are the same kind of fixtures or a number of different kinds, the size of main vents will be estimated according to the size and number of traps they serve, as shown in Table G. (Page 159.)

When wrought iron or mild steel soil, waste or vent pipe is used, the number of fixtures may be varied to accommodate half sizes prorata to schedule hereinbefore given.

Bends at the base of all vertical vent pipes exceeding 15' in length shall be made with 45° ells, or be connected to soil or waste pipe through a "Y" fitting.

Section 29. Water closet traps and traps of slop sinks having vent horn attached to trap shall be vented from same, and if no vent horn be provided, vent shall be taken from soil or waste branch not more than 22" from opening at floor line. In case of single water closet connected to 4" soil pipe, and there being no other fixtures connected to said 4" soil pipe at point of connection, or at any point above said connection, and provided such connection be not more than 22", measured on center line of pipe, in length from 4" main soil or waste pipe to outlet at floor level, the usual back vent may be omitted. In case of a set of bath room fixtures connected to main 4" soil pipe where there are no fixtures connected to said main soil pipe at higher point, if all other fixtures be connected to soil pipe by separate opening, the back vent of the closet may be omitted. 2

Section 30. In buildings where groups or rows of fixtures such as water closets, slop sinks and stall urinals, provided such urinals are the kind having traps below the floor, what is known as the "loop" or continuous venting may be employed, provided such fixtures be connected to top side of horizontal line and provided said connection be not more than 22" measured on center line of pipe, in length from floor line to horizontal lines, said horizontal line must be continued full size beyond fixture farthest from main vertical line and 1' above highest water line of fixture before connecting with main vent. This loop vent may be connected with main stack, 1' above water line of highest fixture or may be continued up separate through roof; provided, however, that not more than 8 fixtures be placed in a group or row, unless a relief vent be attached to horizontal line after each 8 fixtures, or, in case there be more than 8 and less than 16 fixtures in a row, the number shall be divided equally and the relief vent be attached to horizontal line at division. Said relief vent shall be as large as horizontal run, and must be carried up 1' above the water line of fixture before connecting with other vents. 3

The main soil or waste pipe from a point 1' above the water line of the highest fixture, and all vent pipes, may be either standard cast iron, galvanized, wrought iron or mild steel lead or brass.

Lead vent pipe must be of the same weight and quality as that specified in this ordinance for waste pipes; brass vent pipe shall be drawn brass of the same weight and quality as used for waste pipe.

Change in direction of vent pipe may be made at an angle of either 45° or 90°, but all vent pipes must have a fall of at least ¼" per foot toward the trap they serve.

Section 31. Vents for water closet traps shall be not less than 2" in diameter. Vents for slop sinks and other fixtures having traps 2" and larger shall not be less than 2" in diameter. 31

A 2" pipe not to exceed 35' in length may be used to ventilate the trap of a single water closet or slop sink, and must be increased ½" in diameter for every succeeding 35' or fraction thereof, until it becomes the same size as the main soil pipe, and in all cases the vent pipe from trap must be carried up 1' above the water line of fixtures before combining with the vents of other fixtures.

Main vent pipes must conform to the sizes, length and number of fixtures as shown in Table H.

Section 32. Every fixture, sanitary drinking fountain excepted, shall be separately and effectively trapped. One trap shall be required for every 4 sanitary drinking fountains, or fraction thereof, if placed not 32 more than 30" apart. The trap shall be set as near as practicable to the fixture it serves. In all cases where a building is used as a hotel, boarding house or restaurant, the owner or occupant shall install a properly constructed grease trap through which all slops of a greasy nature shall pass. Grease traps for hotel or restaurant sinks shall be at least one-fifth as large as the sinks they serve, and shall be constructed of cast metal provided with cooling jacket. All bath tubs shall have a pot trap with 4" body and 4" screw above floor, for clean-out purposes; said screw to be attached to body of trap by wiped joint.

33 **Section 33.** All yards, cellars, areas and basements must be properly drained. The cellars or basements of all buildings other than residences, which are lower than the street or alley upon which building abuts, must be drained by a connection equal in size to the main sewer connection, provided such main sewer connection be not more than 12" in diameter. The cellar or basement drains of residences must be not less than 2" in diameter. When cellar, basement or area drains are connected to sewer, they must be properly trapped, and traps ventilated according to size. The following size vents shall be applied to cellar or basement drain traps:

2", 3" and 4" traps, 2" vent.
6" and 7" traps, 3" vent.
8" and 9" traps, 3½" vent.
All traps of larger size, 4" vent.

All cellar and basement drains must, when connected to sewer, cesspool or septic tank, be protected from back water by backwater valves, said backwater valve must be provided with water and air-tight clean-out cover placed immediately above valve, either screwed or bolted in place, capable of being removed for examination or repairs.

All cellar, basement or area drain traps, where the natural flow of water is not continuous, must be supplied with water drip to assure a continuous seal in dry weather.

The drain leading from cellars or basements of all buildings other than residences, must be protected by means of a raised strainer not less than 1' in height, said strainer must be bolted or screwed to outlet in such a manner as to be removed for cleaning purposes, and must be sufficiently perforated to admit a full flow of water into sewer.

34 **Section 34.** There shall be clean-outs put in the vertical soil pipe at the basement floor level, or at the ground level where there is no basement, and at the end of horizontal runs; clean-outs must be inserted in cast iron pipe with caulked joint fittings with brass screw cover, or clean-out fitting with cover bolted in place. When clean-outs are put in vertical soil or waste pipe, they shall be put in so as to have their lower side 3" or more above the floor or ground level. Clean-outs, when inserted in wrought iron or mild steel pipe, shall be inserted with screw joint and covered with brass screw cover.

Clean-outs located below basement floors must have manholes of brick, or concrete, with iron cover, and so constructed as to give free and easy access to the clean-out. The internal diameter of clean-out fittings, or trap screws for pot traps, shall not be less than ½" smaller in internal diameter than the pipe they serve. All lead traps shall be provided with brass trap screws for clean-out purposes. Tapping holes in soil or waste pipe will not be permitted. When it becomes necessary to disconnect pipes for removal of stoppage, clean-outs must be inserted as hereinabove stated.

35 **Section 35.** Rainwater leaders shall never be used as soil, waste or vent pipes, nor shall soil, waste or vent pipes be used as rainwater leaders. When rainwater leaders are connected to the house drain they shall be connected on the sewer side of all waste and vent

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connction, except when connected to main horizontal soil pipe in basement. When a rainwater leader is within the building or in any air or light shaft within the outside walls of a building it shall be of cast iron or galvanized wrought iron or mild steel pipe. Such rainwater leaders, provided they do not terminate within 15′ of, or below, any window or opening, need not be trapped.

Outside sheet metal rainwater leaders, when connected to soil pipes within the building, shall be trapped, the trap to be vented the same as other fixtures, and in every case, where rainwater leaders open within 15′ of any window, door or light shaft, they shall be trapped. Outside sheet metal rainwater leaders when connected to sewers must be trapped. Horizontal cast iron rainwater leaders within a building must be extra heavy cast iron to a point 3′ above the ground. All buildings now or hereafter erected shall be kept provided with proper leaders for conducting water from the roof to the ground, and when required by the Commissioner of Health, shall be connected with the sewer or street gutter.

36 **Section 36.** Water service pipes must be so located that the supply for each separate house or premises shall be controlled by a separate stop and waste cock, with extension handle, properly protected from frosts, and so placed within the premises that all service pipe and fixtures may be thoroughly drained during freezing weather. All pipes in the building must be so arranged as to drain toward the stop and waste cock. All water pipes shall be either galvanized iron, lead or brass and protected from frost. Air chambers must be placed at the termination of all vertical lines of water pipe exceeding 6′ in length, and at all sinks.

Whenever any apparatus for heating water be connected direct to city mains, it shall be unlawful for any person to install in the service pipe between such heating apparatus and the city main, any check valve, or any device which will check the back pressure from heating apparatus toward the city main, unless a relief valve be placed on such heating apparatus to the satisfaction of and subject to the approval of the Inspector; and it shall be unlawful for the owner, agent or occupant of any premises owned or controlled by him to maintain or allow to be maintained, in any building on such premises, any such water heating apparatus unless all the conditions herein stated be complied with. It shall be the duty of the Superintendent of Water, or his duly appointed agent, to notify the Department of Health and Sanitation in writing, whenever they shall install any such check valve, or device, on any service pipe for the protection of the city meters.

37 **Section 37.** In no case shall the waste pipe from a refrigerator, or other receptacle where food is kept, be connected direct to the sewer, soil or wast pipe, but must empty into an open tray or sink; said tray or sink must be properly trapped and vented as other fixtures.

38 **Section 38.** Water closet bowls, bath tubs, wash bowls, sinks or slop sinks must never be enclosed in wooden casings. Wooden sinks, wash trays or bath tubs will not be permitted in any building, and all such are hereby declared a nuisance; provided, however, that wooden sinks or vats may be used by engravers and photographers in their work, where strong acids are used, by special permit from the Inspector.

39 **Section 39.** When urinals are placed in any public building the floors must be covered with either marble, slate, extra heavy glass, or glazed tiling, or may be constructed of a body of good concrete floated with not less than 1½″ coat of 1-to-1 cement facing, to the satisfaction of the Inspector.

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When urinals are constructed to drain from trough in floor, the waste pipe shall be at least 2", with 2" trap. Urinals must be supplied with water so as to thoroughly flush all parts, and no galvanized iron or other sheet metal urinal troughs will be allowed.

40 **Section 40.** In all systems of gas piping hereafter constructed, or reconstructed, the size of pipes shall be not less, and the length of pipes shall be not greater in respect to the number of burners than specified in Table I.

Except in the case of fuel lines run for gas ranges in which the consumption of gas for each range must be computed as an equivalent to 8 openings or burners.

No ¼" pipe shall be used unless exposed for a short run only, and not for more than one burner. No gas service pipe shall be less than 1" in diameter.

41 **Section 41.** All gas pipes must be of the best quality of wrought iron; all fittings must be of the best quality of malleable or cast iron, or mild steel; all pipes must be suitably supported and stayed with pipe hooks, straps or screws. All pipes must have a straight drainage toward the opening. Split pipes and fittings are prohibited and must be removed. Pipes must be free from traps and no automatic drips will be allowed. No cement shall be used in any pipes or fittings for the purpose of repairing or concealing defects. Pipes shall not be painted or covered before inspection is made. All drops or openings for wall brackets must be made with bends or long drop ells, and shall be well fastened with pipe hooks or straps. No brackets made with elbows, or toes and nipples will be allowed. When drops or openings are not in close proximity to the studding or joist, a notched wooden cross piece must be securely fastened to secure the same. The rise pipe or main outlet from the meter must not be less than ¾" to the first tier of joists. In all cases the lower end of gas riser shall be left so as to be readily accessible. No union fitting shall be used on concealed piping.

42 **Section 42.** No extension or alteration of any existing system of gas piping in any building shall be made without the inspection and approval of the Inspector. Gas companies shall run all pipes between their mains and the meters, except in buildings where the meters are to be located in meter rooms above the first floor, in which case the company shall run the pipes to the perpendicular rise in basement only.

43 **Section 43.** Upon the completion of any system of gas piping, and before the floors are laid, or the pipes and fittings are concealed, the gas fitter or other persons doing the work shall file in the office of the Inspector an application for inspection of such system of gas piping, and thereupon the Inspector shall, within 3 working days, cause the same to be inspected and tested with a pressure not less than 6" upon a mercury gauge. The gauge and air pump for testing to be furnished by the gas fitter or other persons doing the work. If the testing and inspection be satisfactory to the Inspector, a certificate of approval shall be issued by him. No meters shall be attached to any system of gas pipes previous to the issuing of such certificate.

44 **Section 44.** All branch outlet pipes shall be taken from the side or tops of running lines; never directly from below.

45 **Section 45.** All gas cocks on the house side of meter shall be provided with suitable check or stop on key plainly indicating whether closed or open.

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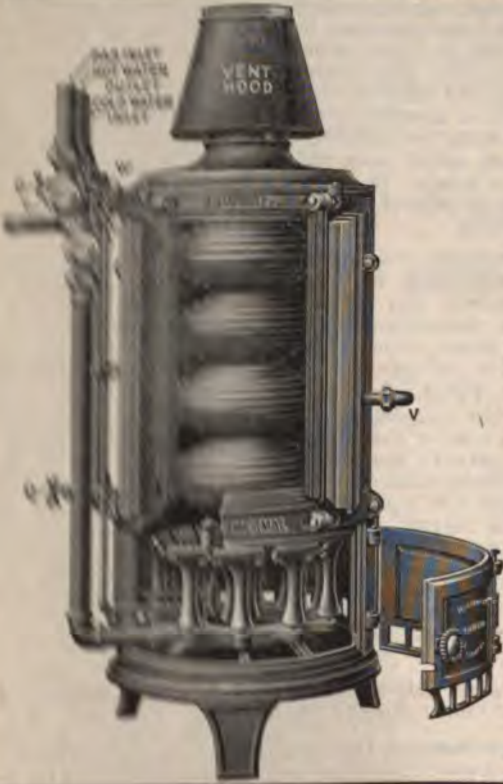

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Section 46. No steam exhaust or blow-off, or any heated water shall be discharged into a sewer until the temperature thereof shall have been reduced to at least 100° Fahrenheit. 46

Section 47. No safety valve, stop valve, or other obstruction shall be placed in the expansion or on the expansion tank of any hot water apparatus, and no device shall be used to increase the pressure of any hot water heating apparatus other than the static head of the water contained therein, unless such device meets with the approval of the Inspector. 47

Section 48. No pipes, or other heated metal in connection with any steam apparatus shall be placed in contact with any combustible material, either at rest or when its position is changed by expansion or contraction, and where steam heated metal shall be placed within 1″ of combustible material the heated metal shall be insulated. 48

Section 49. A fitting shall be provided in sewer for taking water of condensation. 49

Section 50. Any person violating, or failing to comply with any of the provisions of this ordinance, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined in any sum not exceeding $100, or imprisoned in the city jail for a term not exceeding 30 days, or may be both fined and imprisoned. 50

Section 51. That all ordinances or parts of ordinances in conflict with the provisions of this ordinance, be and the same are hereby repealed. 51

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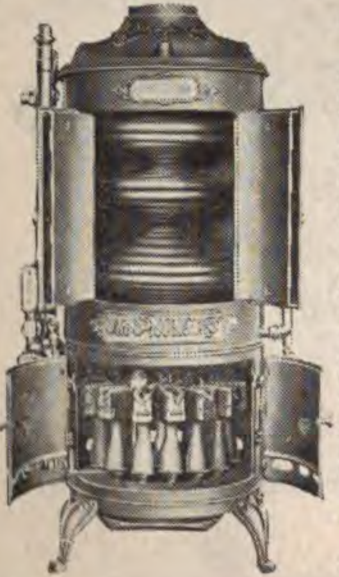

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PLUMBING ORDINANCE TABLES

A

WEIGHT OF CAST IRON SOIL & WASTE PIPE	
Inside Diameter	Weight per Lineal Foot
2 Inches	5½ Pounds
3 Inches	5½ Pounds
4 Inches	13 Pounds
5 Inches	17 Pounds
6 Inches	20 Pounds
7 Inches	27 Pounds
8 Inches	33⅓ Pounds
10 Inches	45 Pounds
12 Inches	54 Pounds

B

WEIGHT OF WROUGHT IRON & MILD STEEL SOIL & WASTE	
Inside Diameter	Weight per Lineal Foot
1¼ Inches	2.24 Pounds
1½ Inches	2.68 Pounds
2 Inches	3.61 Pounds
2½ Inches	5.74 Pounds
3 Inches	7.54 Pounds
3½ Inches	9.00 Pounds
4 Inches	10.66 Pounds
4½ Inches	12.49 Pounds
5 Inches	14.50 Pounds
6 Inches	18.76 Pounds

C

WEIGHT OF LEAD WASTE PIPE	
Inside Diameter	Weight per Lineal Foot
1¼ Inches	2½ Pounds
1½ Inches	3½ Pounds
2 Inches	4 Pounds
3 Inches	4½ Pounds
4 Inches	6 Pounds

D

WEIGH OF BRASS FERRULES	
Size	Weight
4 Inches	24 Ounces
3 Inches	16 Ounces
2 Inches	9 Ounces
2¼ Inches	10 Ounces

E

THE FOLLOWING NUMBER OF FIXTURES WILL BE DEEMED IN EACH INSTANCE THE EQUIVALENT OF ONE WATER CLOSET

No	Name	No	Name
8	Wash Basins	4	Laundry Trays
8	Pantry Sinks	4	Urinals
8	Drinking Fountains	3	Slop Sinks
4	Sinks	1	Slop Sink with 2" or larger waste
4	Bath Tubs		

F

WASTE PIPES RECEIVING THE DISCHARGE FROM FIXTURES SHALL BE THE FOLLOWING SIZES

No	Name	Size	No	Name	Size
1 to 2	Wash Basins, Pantry Sink & Drinking Founts	1¼ In.	21 or More	Bath Tubs	4 In.
3 to 6	Wash Basins, Pantry Sink & Drinking Founts	1½ In.	1 to 3	Wash Tubs not less than	1½ In.
7 to 15	Wash Basins, Pantry Sink & Drinking Founts	2 In.	4 to 10	Wash Tubs not less than	2 In.
16 to 40	Wash Basins, Pantry Sink & Drinking Founts	3 In.	11 or More	Wash Tubs not less than	3 In.
41 to 80	Wash Basins, Pantry Sink & Drinking Founts	4 In.	1	Urinal - not less than	1½ In.
1 to 2	Sinks	1½ In.	2 to 4	Urinals - not less than	2 In.
3 to 10	Sinks	2 In.	5 to 11	Urinals not less than	3 In.
11 to 20	Sinks	3 In.	12 or More	Urinals - not less than	4 In.
21 or More	Sinks	4 In.	1	Slop Sink 1½" Waste Opg not less	1½ In.
1 to 2	Bath Tubs	1½ In.	1	Slop Sink 2" Waste Opg. not less	2 In.
3 to 10	Bath Tubs	2 In.	2 to 8	Slop Sink 3" Waste Opg. not less	3 In.
11 to 20	Bath Tubs	3 In.	1	Slop Sink 4" Waste Opg not less	4 In.

G

SIZE OF VENT PIPES FOR THE FOLLOWING KIND AND NUMBER OF FIXTURES

THIS DOES NOT APPLY TO LOOP SYSTEM OF VENTING (SEE SECTION 28)

No	Name	Size	No	Name	Size
1 to 2	Basins, Pantry Sinks or Drinking Founts	1¼ In.	3 to 10	Bath Tubs	2 In.
3 to 6	Basins, Pantry Sinks or Drinking Founts	1½ In.	11 to 20	Bath Tubs	3 In.
7 to 15	Basins, Pantry Sinks or Drinking Founts	2 In.	21 or More	Bath Tubs	4 In.
16 to 40	Basins, Pantry Sinks or Drinking Founts	3 In.	1 to 3	Wash Tubs	1½ In.
41 to 80	Basins, Pantry Sinks or Drinking Founts	4 In.	4 to 10	Wash Tubs	2 In.
1 to 2	Sinks	1½ In.	11 or More	Wash Tubs	3 In.
3 to 10	Sinks	2 In.	1	Urinal	1½ In.
11 to 20	Sinks	3 In.	2 to 4	Urinals	2 In.
21 or More	Sinks	4 In.	5 to 11	Urinals	3 In.
1 to 2	Bath Tubs	1½ In.	12 or More	Urinals	4 In.

H

MAIN VENTS MUST CONFORM TO THE FOLLOWING SIZES, LENGTHS AND NUMBER OF FIXTURES OR THEIR EQUIVALENT

Size of Vent	Greatest Length to Point of Increase in Size	No of W C or Equiv'lnt	Size of Vent	Greatest Length to Point of Increase in Size	No of W.C. Equivalnt
2 Inches	20 Feet Long	3 W.C	4½ Inches	35 Feet Long	55 W C
2½ Inches	35 Feet Long	9 W C	5 Inches	35 Feet Long	70 W C
3 Inches	35 Feet Long	17 W.C.	5½ Inches	35 Feet Long	90 W.C.
3½ Inches	35 Feet Long	25 W C	6 Inches	35 Feet Long	120 W.C.
4 Inches	35 Feet Long	40 W.C.			

I

SIZE AND LENGTH OF GAS PIPE IN RESPECT TO THE NUMBER OF BURNERS

Size	Openings	Length	Size	Openings	Length	Size	Openings	Length
3/8 Inch	3 or less	15' or less	1½ Inch	40 or less	350' or less	3 Inch	120 or less	1200 ft- less
1/2 Inch	4 or less	50' or less		60 or less	300 or less		200 or less	900' or less
	5 or less	40' or less		80 or less	225' or less		300 or less	600' or less
	6 or less	30' or less		100 or less	150' or less		400 or less	400' or less
3/4 Inch	8 or less	90' or less		120 or less	100' or less		500 or less	300' or less
	10 or less	80' or less	2 Inch	75 or less	500' or less		600 or less	200 or less
	12 or less	70' or less		100 or less	400' or less	4 Inch	200 or less	1600 or less
	14 or less	60' or less		125 or less	350' or less		300 or less	1400' or less
	16 or less	50' or less		150 or less	300' or less		400 or less	1200 or less
1 Inch	16 or less	140' or less		175 or less	250' or less		500 or less	1000 or less
	20 or less	120' or less		200 or less	200' or less		600 or less	800 or less
	25 or less	110' or less		225 or less	150' or less		700 or less	600 or less
	30 or less	90' or less		250 or less	100' or less		800 or less	500' or less
	35 or less	70' or less		300 or less	50' or less		900 or less	400' or less
1¼ Inch	30 or less	300' or less	2½ Inch	100 or less	500' or less		1000 or less	300' or less
	40 or less	250' or less		200 or less	400' or less			
	50 or less	200' or less		300 or less	300' or less			
	60 or less	150' or less		400 or less	200' or less			
	70 or less	100' or less		500 or less	100' or less			

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WIRING ORDINANCE TABLES

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CARRYING CAPACITY OF WIRE OF VARIOUS GAUGES				
B&S.G	RUBBER INSULATION	OTHER INSULATION	CIRCULAR MILLS	DIAMETER IN INCHES
22				.02534
21				.02884
20				.03196
19				.03589
18	3 Amp.	5 Amp.	1624	.04030
17			2048	.04525
16	6 Amp.	8 Amp.	2538	.05182
15			3257	.05706
14	12 Amp.	16 Amp.	4107	.06408
13			5178	.07196
12	17 Amp.	23 Amp.	5530	.08081
11			8234	.09074
10	24 Amp.	32 Amp.	10380	.10189
9			13090	.11443
8	33 Amp.	46 Amp.	16510	.12849
7			20820	.14428
6	46 Amp.	65 Amp.	26250	.16202
5	54 Amp.	77 Amp.	33100	.18194
4	65 Amp.	92 Amp.	41740	.20431
3	76 Amp.	110 Amp.	52630	.22942
2	90 Amp.	131 Amp.	66370	.25763
1	107 Amp.	156 Amp.	83690	.28930
0	127 Amp.	185 Amp.	105500	.32486
00	150 Amp.	220 Amp.	133100	.3648
000	177 Amp.	252 Amp.	167800	.40964
0000	210 Amp.	312 Amp.	211600	.46
	200 Amp.	300 Amp.	200000	
	270 Amp.	400 Amp.	300000	
	330 Amp.	500 Amp.	400000	
	390 Amp.	590 Amp.	500000	
	450 Amp.	680 Amp.	600000	
	500 Amp.	760 Amp.	700000	
	550 Amp.	840 Amp.	800000	
	600 Amp.	920 Amp.	900000	
	650 Amp.	1000 Amp.	1000000	
	690 Amp.	1080 Amp.	1100000	
	730 Amp.	1150 Amp.	1200000	
	770 Amp.	1220 Amp.	1300000	
	810 Amp.	1290 Amp.	1400000	
	850 Amp.	1360 Amp.	1500000	
	890 Amp.	1430 Amp.	1600000	
	930 Amp.	1490 Amp.	1700000	
	970 Amp.	1550 Amp.	1800000	
	1010 Amp.	1610 Amp.	1900000	
	1050 Amp.	1670 Amp.	2000000	

A

B

REQUIRED INSULATION RESISTANCE	
Up to 5 Amperes	4000000 Ohms
Up to 10 Amperes	2000000 Ohms
Up to 25 Amperes	800000 Ohms
Up to 50 Amperes	400000 Ohms
Up to 100 Amperes	200000 Ohms
Up to 200 Amperes	100000 Ohms
Up to 400 Amperes	50000 Ohms
Up to 800 Amperes	25000 Ohms
Up to 1600 Amperes	12000 Ohms

B

WIRING ORDINANCE TABLES

C

CONDUCTIVITY OF EACH WIRE IN STRANDED CONDUCTORS

Gauge No	Per Cent	Gauge No	Per Cent	Gauge No	Per Cent	Gauge No	Per Cent
14	97.0	19	96.0	24	95.0	29	94.0
15	96.8	20	95.8	25	94.8	30	93.8
16	96.6	21	95.6	26	94.6	31	93.0
17	96.4	22	95.4	27	94.4		
18	96.2	23	95.2	28	94.2		

D

THICKNESS OF INSULATION FOR VARIOUS VOLTAGES

Rubber Insl Voltages up to 600		For Voltages 600 to 3800		Slow Burning Weather Proof	
Size	Thickness	Size	Thickness	Size	Thickness
Nos 18 to 16	1/32 In	Nos 14 to 1	3/32 In	Nos 14 to 8	3/64 In
Nos 15 to 8	3/64 In	Nos 0 to 0000	3/32 In.	Nos 7 to 2	1/16 In
Nos 7 to 2	1/16 In	Circular Mills		Nos 1 to 0000	5/64 In
Nos 1 to 0000	5/64 In	250000 to 500000	3/32 In.	Circular Mills	
Circular Mills		Over 500000	1/8 In.	250,000 to 500,000	3/32 In.
250000 to 500000	3/32 In.			500,000 to 1,000,000	7/64 In.
500000 to 1000000	7/64 In			Over 1,000,000	1/8 In
Over 1000000	1/8 In				

E

DIELECTRIC STRENGTH OF RUBBER INSULATION OF VARIOUS THICKNESSES

Lengths of 12 Inches Tested for a period of five minutes to Breakdown.

Thickness	Strength	Thickness	Strength	Thickness	Strength
1/64 In.	3000 Volts A.C	5/64 In.	13000 Volts A.C.	10/64 In.	21000 Volts A.C.
2/64 In.	6000 Volts A.C	6/64 In.	15000 Volts A.C.	12/64 In.	23500 Volts A.C
3/64 In.	9000 Volts A.C	7/64 In.	16500 Volts A.C.	14/64 In.	26000 Volts A.C.
4/64 In.	11000 Volts A.C	8/64 In.	18000 Volts A.C	16/64 In.	28000 Volts A.C

F

THICKNESS OF ARMOR FOR ARMORED CONDUIT

Nominal Internal Dia	Actual Internal Dia.	Actual External Dia	Thickness of Wall	Nominal Internal Dia.	Actual Internal Dia.	Actual External Dia.	Thickness of Wall
1/8 In	.27 In	.40 In	.08 In	2 — In.	2.06 In.	2.37 In.	.15 In.
1/4 In	.36 In	.54 In.	.08 In	2 1/2 In.	2.46 In.	2.87 In.	.20 In.
3/8 In.	.49 In.	.67 In.	.09 In	3 In.	3.06 In.	3.50 In	.21 In.
1/2 In	.62 In	.84 In.	.10 In	3 1/2 In	3.54 In.	4.00 In.	.22 In
3/4 In.	.82 In.	1.05 In.	.11 In	4 In	4.02 In	4.50 In.	.23 In.
1 In	1.04 In.	1.31 In.	.13 In.	4 1/2 In	4.50 In.	5.00 In.	.24 In.
1 1/4 In	1.38 In	1.66 In.	.14 In	5 In.	5.04 In.	5.56 In.	.25 In
1 1/2 In	1.61 In	1.90 In.	.14 In.	6 In.	6.06 In.	6.62 In.	.28 In.

H

SIZE & THICKNESS OF IRON & STEEL PIPE USED AS UNLINED CONDUIT

Trade Size	Approximate Internal Dia	Minimum Wall Thickness
1/2 In	.62 In	.100 In
3/4 In	.82 In	.105 In
1 In	1.04 In	.125 In
1 1/4 In.	1.38 In.	.135 In
1 1/2 In	1.61 In.	.140 In
2 In	2.06 In	.150 In
2 1/2 In	2.46 In	.200 In.
3 In	3.06 In	.210 In.
3 1/2 In.	3.54 In	.220 In

G

SIZE & THICKNESS OF TUBES AND BUSHINGS

Diameter of Hole	External Diameter	Thickness of Wall	Diameter of Head	Length of Head
5/16 In	9/16 In	1/8 In.	13/16 In	1/2 In.
3/8 In.	11/16 In	5/32 In	15/16 In.	1/2 In
1/2 In.	13/16 In	5/32 In	1 3/16 In.	1/2 In.
5/8 In	15/16 In.	5/32 In	1 5/16 In	1/2 In
3/4 In	1 3/16 In	7/32 In	1 11/16 In	5/8 In.
1 In	7/16 In	7/32 In.	1 5/16 In	5/8 In
1 1/4 In	1 13/16 In	9/32 In	2 5/16 In	5/8 In
1 1/2 In	2 3/16 In	11/32 In	2 11/16 In	3/4 In
1 3/4 In.	2 9/16 In.	13/32 In	3 1/16 In.	3/4 In
2 In	2 15/16 In.	15/32 In	3 7/16 In	3/4 In
2 1/4 In	3 5/16 In	17/32 In	3 13/16 In	1 In
2 1/2 In	3 11/16 In	19/32 In.	4 3/16 In	1 In.

I

SPACING OF SWITCHES FOR VARIOUS VOLTAGES

Switches to Operate with a 50% Overload in Amp and a 25% Overload in Volts

Class	Capacity in Amp	Nearest Metal of Opposite Pole	Minimum Break Dist	Voltage	Class	Capacity in Amp	Nearest Metal of Opposite Pole	Minimum Break Dist	Voltage
Panel or Switch Boards	10 or less	3/4 In.	1/2 In.	135 or less	Switch Voltage to 500 AC 100 Amp or over	10 or less	1 1/2 In.	1 1/4 In.	Up to 500 A.C.
	11 to 30	1 In	3/4 In			11 to 30	1 3/4 In	1 1/2 In	
	31 to 50	1 1/4 In	1 In			31 to 100	2 1/4 In	2 In	
Not on Panel or Switch Boards	10 or less	1 In	3/4 In			301 to 600	2 3/4 In.	2 1/2 In	
	11 to 30	1 1/4 In	1 In			301 to 600	2 1/2 In.	2 1/2 In.	
	31 to 100	1 1/2 In	1 1/4 In			601 to 1000	3 In.	2 3/4 In.	
	101 to 300	2 1/4 In	2 In.		All Switches	10 or less	3 1/2 In.	3 In.	251 to 600
	301 to 600	2 3/4 In	2 1/2 In			11 to 35	4 In.	3 1/2 In.	
	601 to 1000	3 In	2 3/4 In.			36 to 100	4 1/2 In	4 In.	

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· WIRING ORDINANCE TABLES ·

CAPACITY OF CIRCUIT BREAKERS

Current Rating of Breakers	Drop in Voltage of Test Circuit	Max. Available Capacity of Supply System not including the Overload
0 to 100 Amperes	2 Per Cent	1000 Amperes
101 to 300 Amperes	3 Per Cent	3000 Amperes
400 Amperes	4 Per Cent.	4000 Amperes
500 Amperes	5 Per Cent	5000 Amperes

SPACING OF OPEN LINK FUSES

Voltage	Current	Minimum Dist of Nearest Metal of Opposite Polarity	Minimum Break Distance
125 volts or less	10 Amp or less	3/4 Inch	3/4 Inch
	11 to 100 Amp	1 Inch	3/4 Inch
	101 to 300 Amp.	1 Inch	1 Inch
	301 to 1000 Amp.	1 1/2 Inch	1 1/2 Inch
126 to 250 Volts	10 Amp or less	1 1/2 Inch	1 1/4 Inch
	11 to 100 Amp	1 3/4 Inch	1 1/4 Inch
	101 to 300 Amp	2 Inch	1 1/2 Inch
	301 to 1000 Amp	2 1/2 Inch	2 Inch

CLASSIFICATION OF ENCLOSED FUSE CUT OUTS

Volts	Current	Volts	Current
0 to 250 Volts	1 to 30 Amp.	251 to 600 Volts	0 to 3 Amp
	31 to 60 Amp		31 to 60 Amp
	61 to 100 Amp		61 to 100 Amp
	101 to 200 Amp		101 to 200 Amp
	201 to 400 Amp		201 to 400 Amp
	401 to 600 Amp		

FUSE TEST CURRENT 50% GREATER THAN RATING & TEMP. of ROOM 75° FAHR.

Current	Must Blow in
0 to 30 Amp.	30 Seconds
31 to 60 Amp.	1 Minute
61 to 100 Amp.	2 Minutes
101 to 200 Amp.	4 Minutes
201 to 400 Amp	8 Minutes
401 to 600 Amp	10 Minutes

TERMINALS OF ENCLOSED FUSES

Volts	Current	Style
0 to 250	0 to 30 Amp.	Cartridge Fuse (Ferrule Contact or Edison Plugs for Voltages to 125 But not Icluding 3 wire circuits with grounded neutral and 250 Volts Between Outside Wires)
	31 to 60 Amp.	Cartridge Fuse (Ferrule Contact)
	61 to 100 Amp.	Cartridge Fuse (Knife Blade Contact)
	101 to 200 Amp.	Cartridge Fuse (Knife Blade Contact)
	201 to 400 Amp.	Cartridge Fuse (Knife Blade Contact)
	401 to 600 Amp.	Cartridge Fuse (Knife Blade Contact)
251 to 600	0 to 31 Amp	Cartridge Fuse (Ferrule Contact)
	31 to 60 Amp.	Cartridge Fuse (Ferrule Contact)
	61 to 100 Amp.	Cartridge Fuse (Knife Blade Contact)
	101 to 200 Amp.	Cartridge Fuse (Knife Blade Contact)
	201 to 400 Amp.	Cartridge Fuse (Knife Blade Contact)

REQUIREMENTS FOR TABLET & PANEL BOARDS

Between Nearest Metal Parts of Opposite Polarity except Switches & Link Fuses

Voltage	Position	Distance
0 to 125	When Mounted on the Same Surface	3/4 in
126 to 250	When Mounted on the Same Surface	1 1/4 in
251 to 500	When Mounted on the Same Surface	2 in
0 to 125	When Free in Air	1/2 in
126 to 250	When Free in Air	3/4 in
251 to 500	When Free in Air	1 3/4 in
0 to 125	Between Parts of Same Polarity of Link Fuses	1/2 in
126 to 250	Between Parts of Same Polarity of Link Fuses	3/4 in

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ELECTRIC WIRING ORDINANCE

Under the Jurisdiction of

Howard Joslyn, City Electrician.

Fire Headquarters, Third Avenue South and Main Street.

ORDINANCE NO. 24392.

For Index See Page 205.

Section 1. The word "person," wherever used in this ordinance, shall be held and construed to mean and include natural persons of either sex, associations, co-partnerships and corporations, whether acting by themselves or by a servant, agent or employes; the singular number shall be held to include the plural and the masculine pronoun to include the feminine. 1

The word "Inspector," wherever used in this ordinance shall be held and construed to mean and include the City Electrician of the City of Seattle, or any of his duly authorized assistants.

The word "Owner," wherever used in this ordinance shall be held and construed to mean and include every person using or operating electrical equipment subject to inspection under this ordinance.

The words "Electrical Equipment," wherever used in this ordinance, shall be held and construed to mean and include any electrical wires, appliances, apparatus or electrical construction of any kind whatsoever, installed or used in or on any buildings or structures, in the City of Seattle.

The word "Approved," wherever used in this ordinance, shall be held and construed to mean and include the approval of the City Electrician.

2 **Section 2.** It shall be unlawful for any person to install, alter or extend any electrical equipment without first obtaining a permit for such installation, alterations, or extensions, from the City Electrician of the City of Seattle. Any person desiring to obtain a permit for the installation, alteration or extension of any electrical equipment shall file an application for such permit with the City Electrician, which shall state the name of the owner or occupant of the premises, the location of the same, and the nature and extent of the work to be performed; provided, that permits shall not be required for the replacing of broken electrical fixtures when such fixtures conform to the regulations contained in this ordinance.

3 **Section 3.** All work for which a permit shall be issued under the provisions of this ordinance shall be done under the supervision of the Inspector at any and all times until its completion.

Upon the completion of such work, it shall be the duty of the person doing the same to notify the City Electrician within 24 hours after the completion of said work. The City Electrician shall at once proceed to inspect the same and if said work is in all respects in conformity with the provisions of this ordinance he shall issue a certificate of final inspection, which shall contain the date of said final inspection and an outline of the result of such inspection. No electric current shall be turned on such electrical equipment, and no electrical equipment put into service, until such certificate be issued.

4 **Section 4.** If, after being notified of the completion of any electrical work or electrical equipment hereinbefore specified, the Inspector shall be unable to inspect the same within a period of 24 hours immediately following the service of said notice of completion, the City Electrician may issue a temporary permit allowing current to be turned on such electrical equipment, pending the inspection of the work.

5 **Section 5.** It shall be unlawful for any owner, contractor or other person engaged in the construction of any building or structure, or otherwise, to do or permit to be done any work of any kind whatsoever which will cover or conceal in any manner any electrical equipment, until the same has been finally inspected. The Inspector shall have the power, when by him deemed necessary for the careful inspection of any electrical equipment, to remove any obstruction which prevents a careful inspection on his part.

6 **Section 6.** Any person owning, or in possession of any building or other structure, within the City of Seattle, shall permit the Inspector to enter and inspect said building and premises once in every three months or oftener, if deemed necessary by the City Electrician, for the purpose of ascertaining whether the electrical equipment in or about said building or other structure or premises is in conformity with the provisions of this ordinance; and it shall be unlawful for any owner or occupant of premises where electrical equipment is used or to be used, or for any person whatsoever, to prevent or interfere with the Inspector in the discharge of his duties under this ordinance; provided, however, that an assistant inspector shall, upon request of the owner or occupant of said premises, exhibit his authority to make such inspection, which shall be signed by the City Electrician.

7 **Section 7.** Whenever any application is made to the City Electrician for reinspection of any work heretofore done, prior to the passage of this act, or when any application or petition is filed or made to

make extensions, alterations or repairs amounting to 60% of the wiring or other electrical work already done and completed in said building, then and in that event the entire work shall be subject to reinspection by said City Electrician, and when any sufficient number of extensions are made upon any work completed after the passage of this act, which in the aggregate shall equal 60% additional wiring or electrical work done, then and in that event such building shall be subject to reinspection.

None of the provisions of this ordinance shall apply to electrical equipment in Central Stations or Sub-stations for the production or control of electric energy for light and power.

Section 8. The said City Electrician shall keep in his office a register in which he shall record the number of each building by proper description in which an inspection of the electrical wiring, appliances or apparatus has been made by him, with the name of the owner or owners of such building, and shall keep a record of the number and description for proper indexing of all such certificates issued by said City Electrician, giving the day when the same was inspected and the person or persons for whom such inspection was made. 8

Section 9. Every person doing work under the provisions of this ordinance shall, before permit is issued, pay to the City Treasurer the following fees, viz: 9

For any new lighting installation:

Any number of outlets for incandescent lights or switches not exceeding 3	$ .50
Any number of outlets for incandescent lights or switches over 3 and not exceeding 20	1.00
For each additional outlet for incandescent lamps or switches	.05
For additions to original permit, outlets for lamps or switches, 10 or less	.50
Each additional outlet	.05
For alterations or extensions to old work, outlets for incandescent lights or switches, 5 or less	.50
Each additional outlet	.05
For installations, alterations or extensions of new or old fixtures, same charge to be made per fixture as in above schedule for each outlet for incandescent lamp or switch; provided, that when cord drops are hung in connection with exposed wiring one permit may be issued for both outlets and cord drops without charge for the cord drops; and provided that for any number of outlets not exceeding 3, one permit may be issued for outlets and cord drops without extra charge for said cord drops.	
For installing any cutout cabinet or panel board, when not done in connection with an original permit for new wiring or fixture work, each	.50
For installing switches for control of incandescent lamps on branch circuits, when not done in connection with an original permit for new wiring or fixture work, the same schedule of charges as given above for new outlets.	
For each motor or generator:	
Capacity ¾ K. W. or less	.50
Capacity over ¾ and not over 7½ K. W.	1.00
Capacity over 7½ and not over 18¾ K. W.	1.50
Capacity over 18¾ K. W.	2.50

Arc lamps, Nernst lamp and special lamp or electrical appliance wiring to be pro rated in accordance with above schedule of charges on the basis of one outlet to be taken as the equivalent of 55 watts consumption in estimating the charge for any special lamp or electrical appliance wiring; provided, that the total amount of fee charged and collected for any permit shall not be less than 50 cents.

Any person applying for permits to be used under the provisions of this ordinance may at his option deposit with the City Treasurer any sum not less than $25 nor more than $100, to guarantee and pay for the issuance of any and all permits thereafter to be issued to such person until such deposit shall become exhausted. The City Treasurer is hereby authorized to receive such deposits for such purpose and issue his receipt therefor.

There is hereby established "Electrical Inspection Permit Fund," in which the Treasurer shall keep all such advance deposits, and whenever there shall be filed with the Treasurer a statement by the City Electrician that a permit is about to be issued to any person, giving the number of such proposed permit and the amount of the fee to be charged therefor, the Treasurer shall receive the amount of the fee and issue his receipt, which must be exhibited to the City Electrician before the permit is finally issued. In the event of any such person having on deposit in the "Electrical Inspection Permit Fund" an amount equal to or greater than the fee indicated on such statement of the City Electrician, the Treasurer shall charge the amount of the fee against such deposit and convert the same into the general fund from such special fund without further order or ordinance therefor.

10 **Section 10.** This ordinance shall not be construed to relieve or lessen the responsibility of any person owning, operating or installing any electrical equipment for damages to any one injured by any defect therein; nor shall the city, or any agent thereof, be held as assuming any such liability by reason of the inspection authorized herein, or the certificate of inspection issued by the City Electrician.

11 **Section 11.** It shall be the duty of the City Electrician on or before the tenth day of each and every month to render a full report of the certificates of inspection issued by him during the previous month to the City Council of said City.

RULES AND REGULATIONS—CONSTRUCTION

12 **Section 12.** All wires, wherever specified in this ordinance by number, shall be of the diameters respectively set opposite the numbers in table A (Page 163):

13 **Section 13.** Copper for insulated conductors, not larger than No. 4, must not vary in diameter more than .002" from the specified size; and on sizes larger than No. 4 must not vary more than one per cent from the specified size.

14 **Section 14.** Wires and cables of all kinds designed to meet the requirements of this ordinance must be plainly tagged or marked with the maximum voltage at which the wire is designed to be used, with the name of the manufacturer and trade name, if any, of the wire and the month and the year when made.

15 **Section 15.** In all stranded conductors the sum of the circular mils of the individual wires must not be less than the nominal circular mils of the strand by more than one and one-half per cent; and the conductivity of the individual wires in a strand must not be less than is given in table C (Page 165):

16 **Section 16.** Copper for all conductors must be thoroughly tinned. The rubber insulation for voltages up to 600 volts must be at least as thick as the dimensions given in table D (Page 165):

All measurements of insulating wall must be made at the thinnest portion of the dielectric; and the completed covering must show an insulation resistance of at least 100 megohms per mile during 30 days' immersion in water at 70° Fahrenheit.

Each foot of the completed covering must show a dielectric strength sufficient to resist throughout 5 minutes the application of an electromotive force proportionate to the thickness of insulation in accordance with table E. and under the conditions thereafter given (Page 165):

For test the source of alternating electro-motive force must be a transformer of at least one kilowatt capacity. The application of electro-motive force shall be made at 4,000 volts for 5 minutes, and then the voltage increased by steps of not over 3,000 volts, each held for 5 minutes, until the rupture of the insulation occurs. The test for dielectric strength shall be made on a sample of wire which has been immersed in water 72 hours. One foot of wire under test shall be submerged in a conducting liquid held in a metal trough, one of the transformer terminals being connected to the copper of the wire and the other to the metal of the trough.

Section 17. The thickness of the insulating wall for voltages between 600 and 3,500 must not be less than that given in the following table: 17

	Thickness.
Number 14 to 1	3-32"
Number 0 to 0000 (covered by tape or braid)	3-32"
Circular Mils—	
250,000 to 500,000 (covered by tape or braid)	3-32"
Over 500,000 (covered by tape or braid)	1-8"

The completed coverings must show an insulation resistance of at least 300 megohms per mile during 30 days' immersion in water at 70° Fahrenheit, and the requirements as to dielectric strength and breakdown resistance must be equal to those hereinbefore specified for wires in Sec. 16.

Section 18. Insulation of wires for arc light circuits with a potential exceeding 3,500 volts, must have an insulating wall of at least $\frac{3}{16}$" in thickness; must withstand a breakdown test of at least 23,500 volts; must have an insulation strength of at least 500 megohms per mile; and the tests for resistance must be under the same conditions as are specified for insulation of wires in Sec. 16. 18

Section 19. The insulation of rubber covered wire must be sufficiently elastic to permit all wires smaller than No. 7 and larger than No. 11 to be bent without injury to the insulation around a cylinder twice the diameter of the insulated wire measured over the outer covering; and the wires of No. 11 and smaller must be bent without injury to the insulation, around a cylinder equal to the diameter of the insulated wire measured over the outer covering. 19

All of the above insulation must be protected by a substantial braided covering, thoroughly saturated with a preservative compound, sufficiently strong to withstand ordinary abrasion.

Section 20. Slow-burning weatherproof wire must have an insulation consisting of a weatherproof coating on the inside and a fireproof coating comprising six-tenths of the total thickness of the wall on the outside. The thickness of the completed covering must not be less than that given in table D (Page 165): 20

All measurements of insulating wall must be made at the thinnest portion of the dielectric. The weatherproof coating must consist of a stout braid smoothly applied and treated as required in Sec. 22, for weatherproof wire. The fireproof coating must be similar to that required in Sec. 21, for "slow-burning" wire, and must be finished with a hard, smooth surface.

Section 21. Slow-burning wires must have an insulation consisting of 3 braids of cotton or other thread, all the interstices of which must be filled with fireproofing compound, or other approved material, having equivalent fire resistance and insulating properties. The solid constituent of said fireproofing compound must not be susceptible to moisture, and must not burn when ground in oxidizable oil. The fireproof compound must be proof against fires and moisture; must have considerable elasticity, and when dry must not burn or suffer change at a temperature of at least 250° Fahrenheit. The outer layer must be braided, with outer surface finished smooth and hard, and the thickness of insulation must not be less than that hereinbefore specified for slow-burning weatherproof wire in Sec. 20. 21

Section 22. Weatherproof wire must have an insulation consisting of at least 3 braids of cotton or other thread, all of which shall be thoroughly saturated with a dense moisture proof compound suitably applied to drive any atmospheric moisture from the braid. This compound must retain its elasticity at zero deg. Fahrenheit and must not drip at 160° Fahrenheit. The thickness of insulation must not be less than that hereinbefore required for slow-burning, weatherproof wire in Sec. 20; and the outer surface shall be thoroughly smoothed down. 22

Section 23. Flexible cord for pendant lamps and portable use must be made of stranded copper conductors, each strand to be not larger than No. 26 or smaller than No. 36 wire. Each stranded conductor must have a carrying capacity equivalent, as hereinafter specified, to not less than a No. 18 wire, must be covered with a tight, close wind of fine cotton or other approved material, with insulation and protective outer covering as hereinafter specified for different types of cord or cable; and must have a distinctive marking as specified in Sec. 14. 23

The insulating covering must comply with requirements of Sec. 16 for thickness of wall, dielectric strength and resistance of insulation, except that insulation less than 3-64" thick must have a resistance of 50 megohms per mile throughout 2 weeks' immersion in water at 70° Fahrenheit.

Section 24. Flexible cord for pendant lamps, which hangs freely in the air and is not moved sufficiently to come into contact with surrounding objects, must have on each conductor an approved braided covering so put on and sealed in place that it will not fray out when cut. For use in damp places the insulation must be at least 3-64" thick and the braided covering must be thoroughly saturated with a moisture proof preservative compound or be inclosed in an outer braided moisture proof covering over the whole. 24

Section 25. Flexible cord for portable use, except for approvel use as in houses or dwellings where not subject to rough usage, must meet all the requirements in Sec. 24; must have an extra layer of rubber between the outer cover and the flexible cord; and must have a tough outer covering tightly braided over the whole; for use in damp places the insulation must be at least 3-64" thick and the cord must have its outer covering saturated with a moisture proof preservative compound thoroughly slicked down or must have an approved filler and two outer braids similarly saturated and slicked down. Flexible cord designed for places where not subject to rough usage and for appearance may, subject to approval of Inspector, have only 1-64" main insulation on each conductor, provided there is an extra layer of rubber between flexible cord and outer cover. 25

Section 26. Flexible cord for portable heating apparatus must be made of braided copper with each strand not smaller than No. 36, or larger than a No. 30; provided, that conductors with a greater carrying capacity than No. 12 may be braided, or stranded, with each strand as large as No. 28; and all stranded conductors must have tight, close wind of cotton between the conductor and the insulation. 26

Conductors must be insulated with a covering of rubber not less than 1-64" thick; and a braided cover thereover not less than 1-32" thick, composed of the best quality of long fiber asbestos, and containing not over 5% of vegetable fibre. The several conductors comprising the flexible cord as a whole or each separately, must be enclosed within an outer reinforcing covering not less than 1-64" thick, and of approved design to resist abrasion.

Section 27. Theater stage cable must not consist of more than 3 flexible copper conductors. Each conductor shall not be of a capacity exceeding No. 4 wire; shall be built up of wires not larger than No. 26; and shall have a tight, close wind of cotton or approved material, with insulation and outer covering meeting requirements of Sec. 23. All conductors shall be twisted together, surrounded with approved filler to make cable round and finished with two weatherproof braids over the whole. Completed cable must be flexible. Border cables must be built up to meet requirements for stage cable, except as to limit in size of each conductor and as filler. 27

Elevator lighting and control cables must comply with requirements for theater cables except that no conductor shall be smaller than No. 14 for elevator lighting or No. 16 for elevator control cables. The outer covering shall consist of 3 braids or an extra layer of rubber and one or more braids; all braids to be treated with preservative compound.

Section 28. Fixture wire must have a carrying capacity not less than that of No. 18 wire; and must be covered with an insulation which will successfully meet the requirements specified in Sec. 16; provided that where used in an arm of a fixture not exceeding 24" long, and where used to supply current to not more than one 16 C. P. lamp, or its equivalent, and where the construction of the fixture is such as to render impracticable the use of wire with rubber insulation 1-32" thick, the Inspector may permit the use of wire with rubber insulation not less than 1-16" thick. 28

All solid conductors must be thoroughly tinned; and all stranded conductors must have no strand smaller than No. 30, and be covered with a tight, close wind of fine cotton between the conductor and the insulation.

The insulation of conductors for fixture wire must be protected with a covering at least 1-64" thick, sufficiently tenacious to withstand the abrasion of being pulled into the fixture, and sufficiently elastic to permit the wire to be bent round a cylinder with twice the diameter of the wire without injury to the braid.

Section 29. Single wire for lined conduit must comply with the insulation requirements of Sec. 16. For unlined conduits, it must comply with the insulation requirements of Sec. 16, provided that approved tape may be substituted for braid, and in addition, there must be a second outer fiber covering of at least 1-32" thick of suitable strength to withstand the abrasion of being hauled through the metal conduit. 29

Section 30. For twin or duplex wires in lined or unlined conduits, each conductor must comply with the requirements in Sec. 16, provided that tape may be substituted for braid on separate conductors; and the several conductors must have a substantial braid covering the whole. 30

Section 31. For concentric wire the inner conductor must comply with the requirements of Sec. 16, except that tape may be substituted for braid; and there must be outside of the outer conductor the same insulation as on the inner; the whole to be covered with substantial braid, which for unlined conduits must be similar to that in Sec. 29. 31

Section 32. Armored cable must have armor as strong as the commercial form of standard metal conduit of the same size, and a thickness not less than that specified in table F; provided, that an allowance of .02" may be permitted by the Inspector for variation in manufacturing and loss of thickness by cleaning. 32

The conductors in armored cable, whether single wire or twin wire conductors, must have an insulating covering which will meet the requirements of Sec. 16; and where any filler is used to secure a round exterior, it must be impregnated with a moisture repellant and the whole bunch of conductors and fillers must have a substantial exterior covering.

Section 33. Lined metal conduits must be at least as strong as the ordinary commercial forms of gas pipe of same size, and must have thickness not less than specified in table given in Sec. 32; must have insulating lining firmly secured to the pipe, and must not be seriously affected externally by burning out a wire inside the tube when the iron pipe is connected to one side of the circuit. All elbows or bends must be made so that the conduit or lining of same will not be injured; and the radius of the curve of the inner edge on any elbow or bend must not be less than 3½". 33

The insulating lining of metal conduits must be at least 1-32" thick; must be composed of materials which will not effect the insulation of the conductor, and be sufficiently tenacious to withstand the abrasion test of drawing long lengths of conductors in and out of same.

It must not soften injuriously at any temperature below 212° Fahr., and must leave water in which it has been boiled practically neutral. It must not crack or break when the length of conduit is uniformly bent at a temperature of 212° Fahr. to an angle of 90° with a curve having a radius of 15" for pipes of 1" diameter and less, and fifteen times the diameter of pipe for larger sizes. It must not be mechanically weak after three days' immersion in water, and when removed from the pipe entire must not absorb more than 10% of its weight in water during 100 hours of submersion.

Section 34. Plain iron or steel pipe, used as unlined conduits, must have thickness, except at screw threads, and dimensions in accordance with table H: 34

Pipe must be of sufficiently true circular section to admit of cutting true, clean threads; must be very closely the same wall thickness at all points, with clean, square weld; must be thoroughly cleaned to remove all scales and must be free from burrs.

Cleaned pipes used for conduits must be protected against oxidization by coating of baked enamel, zinc or other approved material which shall not soften at ordinary temperature, and which shall be sufficiently elastic to prevent flaking when half-inch conduit is bent in a curve the inner edge of which has a radius of 3½". All elbows of bends must be so made that the conduit will not be injured, and the radius of the curve of the inner edge of same shall not be less than 3½".

Section 35. Outlet, Junction and Flush Switch boxes must be of pressed steel having a wall thickness not less than .081", or must be of metal having a wall thickness of not less than ⅛"; and must be well galvanized, enameled or otherwise coated with an approved coat- 35 ing, inside and out, to prevent oxidization; must be arranged to secure in position the conduit or flexible tubing protecting the wire; and inlet holes must be effectually closed, when not in use, by metal equivalent to the walls of the box. Boxes used with lined conduit must comply with the requirements in this section, and must have a tenacious insulating lining at least 1-32" thick, firmly secured in position.

Switch boxes must completely enclose the switch on sides and back, and substantially support the same. Retaining screws for the box shall not be used to secure the switch in position. Covers for outlet boxes must be of metal equal in thickness to that specified for the walls of the box; or must be of metal lined with an insulating material not less than 1-32" thick, firmly and permanently secured to the metal.

36 **Section 36.** Wooden mouldings must be made in two pieces, composing a backing and a capping, and must have, both outside and inside, at least two coats of moisture repelling material; must be provided with a tongue not less than ½" thick; must have exterior walls not less than ⅝" thick under grooves, and not less than ¼" thick on sides, and must thoroughly encase wires. Hardwood moulding is preferred.

37 **Section 37.** Metal mouldings must at all outlets be so arranged that the conductors shall not come in contact with the edge of the metal, either of capping or backing; and depressions must be provided to render the heads of the fastenings flush with the mouldings when backing is secured in position by screws from inside the raceway. Metal mouldings must be constructed of iron or steel with backing at least .05" thick, and with cappings not less than .04" thick, and so constructed that when in place the raceway will be entirely closed; must be thoroughly galvanized or coated with an approved rust preventative both inside and out, to prevent oxidization. Elbows, couplings and other fittings must be constructed of at least the same thickness and quality of metal as the moulding itself; must be so designed as to electrically and mechanically secure the different sections together and maintain the continuity of the raceway, and the interior surface must be free from burrs or sharp corners.

38 **Section 38.** Tubes and bushings must be made straight and free from checks and rough projections, with ends smooth and rounded; and shall be made of non-combustible insulating material which will not absorb over ½ of 1% of its weight when broken and submerged for 100 hours in pure water at 70° Fahr. They must have falls and heads with dimensions at least as great as those given in table G; provided, however, that a variation of 1-64" in manufacturing will be permitted, except in thickness of the wall.

39 **Section 39.** Cleats must be made of non-combustible insulating material which will pass the absorption test specified in Sec. 38; must hold the wire firmly in place, without injury to its covering, and must not have sharp edges against the wire. Bearing points on the surface must be made by ridges or rings about the holes for supporting screws, to avoid cracking and breaking when screwed tight. Cleats must not be used to carry wires for a potential exceeding 300 volts, and must be so constructed that the distance from the wire to the surface of the cleat is not less than ½", and the distance between wires is not less than 2½".

40 **Section 40.** Flexible tubing must have a smooth interior surface; must be constructed of or treated with moisture repelling materials; must have substantial outer covering to withstand abrasion; must not

crack when kinked or flattened out; must be thoroughly flexible at all temperatures at which it is to be used; must not carry fire on application of a flame from a Bunsen burner to the exterior of the tube when held in a vertical position; must not close to prevent insertion of the wire after the tube has been kinked or flattened and straightened out; and the linings, if any, must not be removable in lengths of over 3 feet.

The ¼" flexible tubing must not crack or break when bent in a circle having 6" radius at 50° Fahr.; and the covering must be thoroughly saturated with a dense moisture proof compound which will not slide at 150° Fahr. Other sizes of flexible tubing must be of corresponding construction and quality.

Section 41. All switches used for service switches must indicate on inspection whether the current be "on" or "off." Switches for constant current system must close the main circuit and disconnect the branch wires when turned "off"; must be automatic in action, not stop between points when started, prevent an arc between points under all circumstances, and must indicate whether the current be "on" or "off."

Section 42. Knife switches must be mounted on non-combustible, non-absorptive, insulating bases, such as slate or porcelain. Bases with an area of over 25 square inches must have at least four supporting screws. Holes for the supporting screws must be so located or countersunk that there shall be at least ½" space, measured over the surface, between the head of the screw or washer and the nearest live metal part; and in all cases when between parts of opposite polarity screws must be countersunk. Pieces carrying contact jaws and hinge clips must be secured to the base by at least two screws, or made with a square shoulder, or provided with dowel pins, to prevent turning; and the nuts or screw heads on the under side of the base must be countersunk not less than ⅛" and covered with a waterproof compound which will not melt below 150° Fahr.

Hinges of knife switches must not be used to carry electric current, unless they are equipped with spring washers, held by locknuts or pins of sufficient strength to maintain a good contact at all times.

Section 43. All switches must contain sufficient metal to insure rigidity and prevent rise in temperature in any part of over 50° Fahr. at full load; must have contacts arranged to secure thoroughly good bearing at every point; must be mechanically strong and have contact surface of not less than 1 square inch of pure copper blades for each 75 amperes. All switch crossbars less than 3" in length must be made of insulating material, and all metal bars of 3" or more in length must be sufficiently separated by insulating material from the jaws of the switch to prevent arcs following from contacts to the bar when switch is opened under any circumstances. Crossbars must be secured to each blade by two screws or the joints must be made with square shoulders or provided with dowel pins. Switches must be equipped with lugs firmly screwed or bolted to the switch, and into which the conducting wires must be soldered; provided, however, that for currents of less than 30 amperes they may be equipped with simple clamps of an approved form.

Section 44. All switches must be constructed of sufficient metal to operate successfully at an overload of 50% in amperes and 25% excess voltage; must be visibly marked with the name of the maker, and the current and voltage capacity for which the switch is designed; and must be spaced not less than the dimensions given in table I (Page 165):

Section 45. Switches designed for breaking current greater than 100 amperes at a pressure of more than 300 volts must be equipped with auxiliary brakes, or approved equivalents; and for 3-wire Edison systems the spacing and break distances for 3-pole knife switches must not be less than those required in the above table for switches to operate for the same voltage as that between the neutral and outside wires of said systems. 45

Section 46. All snap switches of the flush, push button, door, fixture and other types, must have ample metal in all parts to insure rigidity and prevent rise in temperature of any part of over 50° Fahr. at full load; and must have contact surface for all current carrying parts of not less than 1-10th square inch for each 10 amperes. Current parts must be mounted on non-combustible, non-absorptive, insulating bases, such as slate or porcelain, and the holes for supporting screws must be countersunk not less than ⅛". There must in no case be less than 3-64" space between supporting screws and current carrying parts. Sub-bases of non-combustible, non-absorptive, insulating material, which shall separate the wires at least ½" from the surface wired over, must be furnished with all snap switches used in exposed or moulding work. Pieces carrying contact jaws must meet all requirements specified in Sec. 42; and all material used for insulating current carrying parts must retain its insulating and mechanical strength when subject to continued use; must be non-absorptive and not soften at temperature of 212° Fahr. Binding posts for snap switches must be substantially made and must have screws of such size that the threads will not strip when set up too tight. Switches with set screws forming contact must not be used. Covers made of conducting material, except face plates for flush switches, must be lined on sides and top with tough and tenacious insulating material at least 1-32" thick, firmly secured; and side lining must extend slightly beyond edge of cover. The handle or button, or any exposed part, must not be in electrical connection with the circuit. Switches must make and break with a quick snap, and must not stop when motion has once been imparted by button or handle; must operate successfully at 50% overload in amperes, and at 125 volts direct current for all switches designed for the same or less voltage, and at 250 volts direct current for all 126 to 250 volt switches, under the most severe conditions which they are liable to meet in practice; provided that for switches rated higher than 10 amperes the test shall be 25% overload in amperes; and when slowly turned on and off at the rate of two or three times per minute, while carrying their rated current, at rated voltage, must make and break the current 6,000 times before failing. 46

All switches must be plainly marked on front of cap, cover or plate with name or trade mark of the maker and the current and voltage for which the switch is designed; provided that on flush switches these markings may be placed on the back of the face plate or on the sub-plate. Switches indicating whether current is "on" or "off" are preferred.

Section 47. Circuit breakers must have bases and be mounted as specified for knife switches in Sec. 42, and be provided with easily accessible means of tripping them by hand without injury to the operator. They must successfully operate 3 times, with 2-minute intervals intervening, without incapacitating the breaker under conditions of the testing current given in table J: 47

Multiple breakers must comply with above requirements whether test is on all poles at once or on one pole individually.

Circuit breakers must successfully withstand a test of 2,000 volts alternating current for one minute between live metal and the ground, between the poles in the multi-polar breaker, and between terminals with breaker open. The maximum rise in temperature at rated current must not exceed 50° Centigrade for coils or 30° Centigrade for other parts; and they must not have a plus or minus error exceeding 10% at any point of calibration. Automatic overload circuit breakers must have metal work ample to secure rigidity and be substantial in construction, and contact points must be arranged to secure thoroughly good bearings.

Circuit breakers must be plainly marked, where it will be visible when installed, with name of maker and the current and voltage for which device is designed.

Section 48. Cut-outs, except rosettes and attachment plugs, must be supported on bases of non-combustible, non-absorptive insulating material; must be plainly marked where it will always be visible, with the name of the manufacturer and the current and voltage for which they are designed: and all cut-outs must be of the plug or cartridge type except when arranged in approved cabinets as hereinafter specified. Cut-outs must operate successfully on short circuits under the most severe conditions which they are liable to meet in practice, and 25% above their rated voltage: link fuse cut-outs must operate successfully with fuses rated at 50% above the current for which cut-out is designed, and enclosed fuse cut-outs must operate successfully with the largest fuses for which the cut-out is designed.

Section 49. Link fuse cut-outs of the open link fuse type must have bases and be mounted to comply with the requirements specified in Sec. 42. Nuts or screwheads on the under side of the base must be countersunk not less than ⅛" and covered with waterproof compound which will not melt below 150° Fahr.

Fuse block terminals must have ample metal to insure rigidity and to prevent rise in temperature of any part of over 50° Fahr. at full load; must be made of compact form with all corners rounded and all edges chamfered, and must have connections similar to those provided in Sec. 43. They must, under test, operate successfully when blowing one fuse at a time on short circuits, with fuses rated at 50% above, and with a voltage 25% above the current and voltage for which the cut-out is designed; and plain open link fuses mounted on slate or marble bases must have spacings not less than those given in table K; provided, that when copper fuse tips overhang edges of fuse block terminals, the spacing must be measured between the edges of tips.

A space must be maintained between the fuse terminals of the same polarity of at least ½" for voltage up to 125, and of at least ¾" for voltages from 125 to 250.

For 250 volt boards or blocks, except when otherwise approved by the City Electrician, a substantial barrier of insulating material, not less than ⅛" thick, must be placed in the break gap, and extend out from the base at least ⅛" farther than any bare live parts of the fuse block terminals; and cut-outs for 3-wire systems must have the break distance required for circuits of the potential of the outside wires.

Section 50. Enclosed fuse cut-outs of the plug and cartridge type must be constructed as to blocks, screws and mounting as hereinbefore required in Sec. 42, and must have connections meeting requirements specified in Sec. 43. Enclosed fuse cut-outs must have approved terminals of Edison plug, spring clip or knife blade type of design to take corresponding standard enclosed fuses; must have terminals secured to base by two screws or the equivalent and so made as to prevent them turning and to insure good contact with fuse, and must have end stops provided to insure proper location of cartridge fuse and cut-out. Enclosed fuse cut-outs must be classified as given in table L, and must be designed so that the base of one class cannot be used with fuses on another class rated for a higher current or voltage (See page 167):

Section 51. Link fuses must have terminals with contact surfaces or tips of harder metal having perfect electrical connection with the fusible part of the strip; and must be stamped with 80% of maximum current which they will carry indefinitely. 51

Section 52. Enclosed fuses of the plug and cartridge type must be sufficiently dust tight to prevent lint and dust collecting around the fusible wire; must have fusible wire firmly attached to fuse or cartridge terminal to secure connection, and must be classified and designed to fit relatively the different classes of cut-out blocks, and those only, corresponding thereto. Fuses must be so designed that temperature of the exterior of the fuse enclosure must not exceed 125° Fahr. above surrounding air when fuse is carrying its rated current. Enclosed fuses must be plainly and visibly marked with the name or trade-mark of the maker and the current and voltage for which the fuse is designed; and fuses must be so constructed that with the surrounding atmosphere at a temperature of 75° Fahr. they will carry indefinitely a current 10% greater than that at which they are rated, and at a current 25% greater than the rating they will open the circuit without reaching a temperature which will injure the fuse tube or terminals of the fuse block. With the current 50% greater than the rating, and at a room temperature of 75° Fahr., the fuses starting cold, must blow within the time specified in table M. (Page 167.) 52

Under test, enclosed fuses must not hold the arc or throw out melted metal or sufficient flame to ignite inflammable material on or near the cut-out when only one fuse is blown at a time on a short circuit on a system of the voltage for which the fuse is rated. The normal capacity of the system must be in excess of the load on it just previous to the test by at least five times the rated capacity of the fuse under test. The resistance of the circuit up to the cut-out terminal must be such that the impressed voltage at the terminal will be decreased not more than 1% when a current of 100 amperes is passed between them. Terminals of enclosed fuses must be sufficiently heavy to insure mechanical strength and rigidity, and the styles of terminals must be as shown in table N. (Page 167.)

Section 53. Tablet and panel boards must be so constructed that the distance between bare live metal parts shall not be less than that given in table O; provided, that parts of the same polarity of switches or enclosed fuses may be placed closer together, subject to the approval of the City Electrician. (See page 167.) 53

They must have marks visible at all times to show name or trademark of the manufacturer, the maximum capacity in amperes, and the voltage for which they are designed.

The spacings for link fuses and knife switches must not be less than those required in Secs. 44 and 49. When branch switches are between fuses and bus-bars, connections must be so arranged that the switch blades shall be dead when the switches are open.

Section 54. Cut-out cabinets must be substantially constructed of non-combustible, non-absorptive material, or of wood thoroughly filled and painted; provided, that when wood is used, it must be well seasoned, at least ¾" thick and the inside of the cabinet must be lined with a non-combustible material, which may be of asbestos board at least ⅛" thick, if used in dry places and if firmly secured by tacks and shellac, except for use with metal conduit systems or where armored cable or metal is used. 54

In all cabinets, linings of slate, marble or approved composition must be at least ¼" thick and firmly secured in place; when metal is used for lining it must be at least 1-16" thick; and in metal conduit systems where armored cable or metal moulding is used, all metal linings must be bonded in approved manner. Composition cabinets must be of approved material not less than ¾" thick, and must not be used with metal conduits, armored cable or metal mouldings except when metal lined.

Metal, of metal cabinets, must have a thickness of at least ⅛" for cast metal and not less than 1-16" thick for sheet metal; provided, that in cabinets having an area of more than 800 square inches for any surface, or having a single dimension exceeding four feet, sheet metal must not be less than .078" thick; and all metal must be of sufficient thickness and be reinforced in an approved manner to insure rigid construction and keeping their shape.

Doors must be closed against a rabbet or have flanges over edges to make cabinets dust tight. Hinges must be strong and durable, and a strong spring catch or equivalent approved device must be provided to keep the door closed. Doors with glass panels must have glass not less than ⅛" thick, and must have glass at least ¼" thick for panel areas greater than 450 square inches.

When metal doors less than .109" in thickness and not lined with insulating material are used there must be a space of at least 1" between the door and any enclosed fuse or current carrying metal part. A space not less than 2" must be provided between open link fuses and metal, metal lined or glass paneled doors of cabinets; and, except as hereinbefore provided, there must be a space of not less than ½" between the walls, back or door of any cabinet and any exposed current carrying metal part; provided, that in theaters a space not less than 6" must be allowed between any fuse and the front of door of enclosing cabinet.

Bushings, through which wires must enter cut-out cabinets, shall fit tightly the holes in the box, and be of approved construction; and the wires must be taped or otherwise covered, if necessary, to completely fill the holes in the bushings.

Section 55. Rosettes must be marked plainly and visibly with the name or trade-mark of the maker, and the rating in amperes and volts. 5

Fuseless rosettes shall be rated at not over 3 amperes, 250 volts; and fused rosettes with link fuses at not over 2 amperes, 125 volts. Rosettes must have ample space for substantial knot to be tied in the cord as a whole, with all bearing parts of the rosettes smooth and well rounded; must have a cord inlet with a diameter of at least 13-32", and when made in two parts must have a cover closely fitted over and firmly secured to the base.

They must have line terminal plates at least .06" in thickness, and terminal screws not smaller than No. 6 Standard screw. All terminal plates for flexible cord and fuses must be at least .06" thick, and must have terminal screws not smaller than No. 5 Standard screw. At all binding screws for line wires and for flexible cord, upturned lugs, or some approved equivalent, arrangement must be provided which will secure the wires being held under screw heads.

Rosettes must have contact pieces and terminals firmly secured in position by at least two screws, or made with square shoulder, and the nuts or screw heads on the under side of the base must be countersunk not less than ⅛" and covered with waterproof compound which will not melt below 150° Fahr.

All current carrying parts must be mounted on non-combustible, non-absorptive insulating bases, and there must be no openings through the rosette bases, except for supporting screws, in the open type; and for both screws and conductors in the concealed type. There must be at least ¼" space, measured over the surface, between supporting screws and current carrying parts. The supporting screws must be so located or countersunk that the flexible cord cannot come in contact with them. Bases for the knob and the cleat type must have at least 2 holes for supporting screws; must be high enough to keep the wires and terminals at least ½" from the surface to which the rosette is attached, and must have a porcelain lug under each terminal to prevent the rosette from being placed over projections which would reduce the separation to less than ½".

Bases for moulding and conduit box type must be high enough to keep the wires and terminals at least ⅜" from the surface wired over. Fused rosettes must have a fuse in each pole, and must operate successfully, when short-circuited, on the voltage for which they are designed; the test to be made in approved manner with both fuses in circuit.

Section 56. Sockets and receptacles suitable for voltage not exceeding 250 and for lamps consuming not over 175 watts will be classed as "Standard," and all sockets for lamps of higher consumption of current and higher voltage will be classed as "Special." Standard sockets must be plainly marked as such, with the maker's name or registered trade-mark, and all sockets must be marked with the current and the voltage for which they are designed. For lamps consuming over 175 watts the Standard key socket must not be used, but the Standard keyless socket may be used; and if a key is required, a special approved socket, designed for the current to be used, must be made. 56

Metal used for socket shells must not be brittle or sufficiently soft to be easily dented; brass shells must be .013" thick, and shells of other material must be thick enough to give the same stiffness and strength as the required thickness of brass.

The inside of the socket shells must be lined with insulating material which shall absolutely prevent the shell from becoming a part of the circuit. The material used for lining must be tough and tenacious; must be at least 1-32" thick; must be in one piece, unless otherwise approved, and firmly secured to the shell; must not be injuriously affected by the heat from the largest lamp permitted in the socket, and must leave water in which it has been boiled practically neutral.

Caps of sockets must be lined with insulating material which shall meet the requirements for lining of shells; must be similar in metallic strength and thickness to the requirements for shells; must have inlet pieces containing sufficient metal for a full, strong thread, and except for special sockets, be tapped with a standard ⅛" pipe thread; when inlet piece is not in one piece with the cap, it must be joined to it in such a way as to give the strength of a single piece.

Caps must be sufficiently large to receive a knot in the cord, without undue crowding, and all parts of the cap upon which the knot is likely to bear must be smooth and well insulated.

Special sockets or standard sockets with an outlet threaded for ⅜" pipe must comply with the requirements of this section.

Socket frames for holding the moving parts must be sufficiently strong and stiff to insure rigidity; and points of opposite polarity must everywhere be kept not less than 3-64" apart; provided, that they are not separated by an approved insulation.

Brass pieces containing screw threads must be at least .06" thick, and binding-post screws must not be smaller than No. 5 standard screw. Connecting points in the socket must be so made as to securely grip a No. 16 or No. 18 wire; the base on which current carrying parts are mounted must be made of porcelain, and all insulation material must be approved. The socket must firmly hold the lamp in place, and must provide sufficient contact to prevent undue heating with maximum current allowed. The holding pieces, springs and other similar parts, if a part of the circuit, must not be exposed to contact with anything outside of the lamp and socket.

The socket key handle must be of material which will not soften from the heat of a 175 watt lamp hanging downward from the socket in the air at 70° Fahr., and must be securely attached to the metal spindle which it turns.

All screws and porcelain pieces, wherever possible, must be sealed by a waterproof compound which will not melt below 200° Fahr., and the socket as a whole must be firmly put together with bayonet joints or an approved equivalent.

The socket, when slowly turned "on and off," at the rate of 2 or 3 times per minute, and while carrying a load of 1 ampere at 250 volts, must make and break the circuit 6,000 times before failing.

Keyless sockets of all kinds must comply with the requirements for key sockets as far as they apply; porcelain shell sockets must not be used where subject to hard usage, and all sockets of porcelain or other insulating material must conform with the requirements for standard sockets as far as they apply.

All standard sockets not attached to fixtures must be provided for the threaded inlet with a strong insulating bushing having a smooth hole not less than 9-32" in diameter, and having all edges rounded and inside fins removed. Bushings for sockets having an outlet threaded for ⅜" pipe shall have a smooth hole at least 13-32" in diameter.

Section 57. Arc lamps must be provided with reliable stops to prevent carbons falling out if clamps become loose; and all exposed parts must be carefully insulated from circuit.

They must, for constant-current systems, be provided with an approved hand switch and an automatic switch that will shunt the current around the carbons should they fail to feed properly.

Spark arresters must sufficiently close the upper orifice of the globe to prevent any sparks thrown off by the carbon to escape.

Section 58. Insulating joints must not have soft rubber in their construction; must be entirely made of material which will resist the action of illuminating gases, and will not give way or soften under the heat of an ordinary gas flame or leak under moderate pressure; must be so arranged that a deposit of moisture will not destroy the insulating effect; must show a dielectric strength between gas pipe attachments sufficient to resist throughout 5 minutes the application of an electro-motive force of 4,000 volts, and must be of sufficient strength to resist strains to which they may be subject during installation.

Section 59. Rheostats must be plainly and visibly marked with the rating thereof; and the terminals of motor starting rheostats must be marked to indicate to what part of the circuit each is to be connected, as "Line," "Armature" and "Field."

They must be entirely of non-combustible materials, except approved minor parts, must have legs or supports which will keep the rheostat casing at least ¼" from any supporting plane surface; must be constructed in a strong and workmanlike manner, and all segments, lever arms and approved minor parts must be mounted on non-combustible, non-absorptive insulating materials.

Rheostats must have clamps for connecting wires to terminals, designed strong and heavy, and to secure a thoroughly good connection. For currents above 50 amperes, lugs firmly screwed or bolted to the terminals into which connecting wires shall be soldered. must be used; provided that clamps or lugs will not be required when leads designed for soldered connections are furnished.

Rheostats must be so designed for fixed and movable contacts, and the resistance in each section, as to secure the least arcing and roughening of the contacts. All segments must be of heavy construction, with rounded corners.

Motor-starting rheostats must have the contact, at which circuit is broken by lever arm when moved from running to starting position, designed to prevent arcing; and the final contact, if any, on which lever arm is brought to rest in the starting position must have no electrical connection. They must be so designed that the contact arm cannot be left on intermediate segments, and must be equipped with an automatic device which will interrupt the supply circuit before speed of the motor falls to less than 1-3 of its normal value; provided, that for alternating current circuits the automatic interrupting device may be omitted.

Overload-release devices which are inoperative during the process of starting the motor must not be used, unless other circuit-breakers or fuses are installed in connection with them.

Rheostats must, after 100 operations during the most severe normal conditions for which the device is designed, show no serious burning of the contacts or other faults; and the release mechanism of motor-starting rheostats must not be impaired by such a test. Field rheostats or main line regulators intended for continuous use, must not be burned out or depreciated by carrying the full normal current on any step for an indefinite period. Regulators intended for intermittent use (such as on electric cranes and elevators), must be able to carry their rated current on any step for as long a time as the character of the apparatus which they control will permit them to be used continually.

Starting duty resistance must be constructed to confine within the rheostat any arc or flame or molten droppings if the resistance conductor be fused; or they must be constructed with such capacity that when the rated full-load current is passed through entire resistance for a period of 5 minutes there shall be no resultant flaming or molten droppings.

Continuous duty resistance shall be constructed for similar confinement of any arc, flame or molten droppings within rheostat if resistance conductor be fused; or must have such capacity that if subjected to a current flow throughout the entire rheostat, 25% in excess of that for which they are rated, for a period of 2 hours, there shall be no rheostat flaming or molten drippings.

Section 60. Reactive coils must be made of non-combustible material, mounted on non-combustible bases and generally treated as sources of heat. Condensers must be treated like other apparatus operating with equivalent voltage and current. They must have non-combustible cases and supports, and must be isolated from all combustible materials, and generally treated as sources of heat. 60

Section 61. Transformers must be placed in metallic or other non-combustible cases, and must be so designed and connected that the middle point of the secondary coil can be readily reached for grounding connections. Must be constructed to comply with the following test: 61

1. Shall be run for 8 consecutive hours at full load in watts under conditions of service, and at the end of that time the rise in temperature, as measured by the increase of resistance of the primary and secondary coil shall not exceed 175° Fahr.

2. The insulation of the transformers designed for normal primary voltage not exceeding 5,000 volts, when heated to normal full load operating temperature, shall withstand continuously, for one minute, a difference of potential of 10,000 volts, alternating current, between primary and secondary coils, and primary coils and core, and a no-load "run" at double voltage for 30 minutes.

62 **Section 62.** Lightning arresters must have no moving parts, must be mounted on non-combustible bases; must be so constructed as not to maintain an arc after the discharge has passed, and must be approved by the City Electrician.

GENERAL RULES FOR INSIDE WORK.

63 **Section 63.** For inside work, conductors must not be of smaller size than No. 14, must be confined with tie wire having an insulation equal to that of the main wires, or by some form of confining insulator; provided, that fixture wire and flexible cord may be of sizes as small as No. 18. For confining wire smaller than No. 8, split knobs or cleats shall be used, except at dead ends, and screws must be used for fastening all cleats and knobs which are arranged to grip wire. Tie wires and solid knobs must not be used for wire smaller than No. 8 unless by special consent of the City Electrician.

Wires must have all joints soldered, being first spliced in a manner to be mechanically and electrically secure without solder, then soldered and covered with insulation equal to that of the conductor. Stranded wires must be soldered before being fastened under clamps or binding screws, and all wires with a conductivity exceeding that of No. 8 must be soldered into lugs for all terminal connections.

64 **Section 64.** Wires must be separated from contact with walls, floors, timbers or partitions through which they pass by non-combustible, non-absorptive, insulating tubes of sufficient length to bush the entire length of the hole in continuous piece; provided, that where it is impracticable to extend glass or porcelain bushings entirely through the hole, a strong tube, such as iron pipe, extending sufficiently to absolutely prevent contact of the conductor with the pipe, must be used. All wires must be kept free from contact with all other metallic piping, or any other conductor, or conducting material, which they may cross by a continuous and firmly fixed non-combustible, non-absorbent, non-conductor, so located as to create a permanent separation and afford approved protection.

Wires must run over pipes upon which moisture may gather, or which by leaking might cause trouble on a circuit, and when in wet places must not come in contact with any pipe or conductor, and must be so placed that an air space will be left between the conductors and pipes in crossing thereover.

Wires in an elevator shaft must not be run in wooden moulding, or supported on insulators, but shall be encased in approved conduits of metal or other material.

65 **Section 65.** Underground conductors must not supply more than one building when run from a subway to a building, except by written permission from the Inspector; must be protected against moisture and mechanical injury where brought into a building, and must be kept free from all combustible materials; must not be so arranged

as to shunt the current through a building around any catch box; and where underground service enters building through tubes, the tubes must be tightly closed at outlets with asphaltum or other non-conductor to prevent gases entering the building.

Section 66. Conductors of copper wire must not be allowed to carry a greater current than shown in the following table; and conductors of aluminum wire must not be allowed to carry a current greater than 85% of that given in table A with the same kind of insulation. (Page 163.) 66

Section 67. Service switches, cut-outs, fuses, circuit-breakers and switches controlling current for motors or heating devices, on constant-potential circuits, must not be located in the immediate vicinity of easily ignitible materials, or exposed to inflammable gases or dust or the flyings of combustible particles; provided, that when they cannot be located in building without such exposure they must, except for oil switches and circuit-breakers with dust-tight casings, be placed in dust-proof cabinets provided with self-closing doors and constructed in accordance with Sec. 54. They must, when exposed to dampness, be enclosed in a moisture proof box or mounted on porcelain knobs, and the cover of any such box must be so made that no moisture collecting on top or sides of box can enter it. 67

They must, except as otherwise provided in Secs. 73, 77 and 124, be so arranged that the fuses will protect and the opening of the switch will disconnect all of the wires. Automatic overload circuit-breakers, when installed without other automatic overload protective devices, must have poles and trip coils arranged to afford complete protection against overloads and short circuits; and if used in place of switch, must be so arranged that no one pole can be opened manually without disconnecting all the wires.

Section 68. Time switches, sign flashers and similar appliances must be enclosed in an iron or steel box, the metal of which must not be less in thickness than .128″; or in a cabinet lined with fire-resisting material, such as marble or slate, at least ⅝″ thick, or iron at least .128″ thick; provided, that the cabinet shall be so constructed that switch when open shall clear the door not less than 1″. 68

CONSTANT CURRENT SYSTEMS.

Section 69. Wires for constant current systems must have rubber insulation in compliance with the requirements of Sec. 16 and must be arranged to enter and leave the building through a double contact switch which shall be automatic in action, not stop between points when started, shall prevent an arc between points, close the main circuit and disconnect the branch circuit when thrown off. Switch shall be mounted in non-combustible case, kept free from moisture, and easy of access to police or fireman. 69

Wires for constant current systems must always be in plain sight, and never encased, except when required by the Inspector. They must be supported on glass or porcelain insulators, which separate the wire at least 1″ from the surface wired over; and must be kept rigidly at least 8″ from each other, except within the structure of lamps, on hanger-boards or in cut-out boxes, or like places, where a less distance is necessary.

They must, on side walls, be protected from mechanical injury by a substantial boxing, retaining an air space of 1″ around the conductors, closed at the top (the wires passing through bushed holes), and extending not less than 7′ from the floor. When crossing floor timbers in cellars, or in rooms where they might be exposed to injury, wires must be attached by their insulating supports to the under side of a wooden strip not less than ½" thick; provided, that guard strips not less than ⅞" thick at least as high as the insulators, running on each side of and close to the wires, may be approved by the Inspector instead of the running board.

Section 70. Series arc lamps for constant-current circuits must be 70
carefully isolated from all inflammable material; must be provided at all times with a glass globe, not broken or cracked, surrounding the arc and securely fastened upon a closed base; and must be provided with a wire netting of approved mesh around the globe, and a spark arrester in accordance with Sec. 57, when in vicinity of readily inflammable material; provided, that "enclosed arc" lamps, having tight inner globes, may, subject to approval of the Inspector, be exempt from foregoing provisions.

When arranged to be raised or lowered, lamps must be connected up with stranded conductors from the last point of support to the lamp, provided that said conductor is larger than No. 14; and must be hung from insulating supports, other than their conductors, where approved hanger boards are not used.

Section 71. Incandescent lamps in series circuits must have con- 71
ductors installed as required in Sec. 69; must have each lamp suspended by a rigid tube from hanger board, and provided with an automatic cut-out; and must not be attached to gas fixtures or equipped with electro-magnetic device for switches, or arranged in series multiple or multiple-series systems.

CONSTANT-POTENTIAL SYSTEMS.

Section 72. Automatic cut-outs in form of fuses or circuit-breakers, 72
must be placed on all service wires in the nearest accessible place to the point where they enter any building, inside the walls thereof, and arranged to cut off the entire current in the building. They must be placed at every point where a change is made in the size of the wire, provided the cut-out in the larger wire will not protect the smaller; and must be so placed that no set of incandescent lamps requiring more than 660 watts shall be dependent upon one cut-out, except in approved cases of large chandeliers, stage borders and illuminated signs.

Cut-outs must be mounted in approved manner in plain sight or enclosed in a cabinet meeting the requirements specified in Sec. 54 and readily accessible, but must not be placed in canopies or in shells of fixtures. They must have fuses with a rated capacity not exceeding the carrying capacity of the wires as given in Sec. 66; and when in form of circuit-breakers must not be set more than 30% above said carrying capacity of the wire, unless a fusible cut-out is also installed in the circuit, in which event the circuit-breaker may be set as high as 100% above such capacity.

Section 73. All branches or taps from any 3-wire systems which 73
are directly connected to lamp sockets, motors or other translating devices, when more than one is dependent on a single cut-out, must be run as 2-wire circuits if the fuses are omitted in the neutral, or if the difference of potential between the two outside wires exceeds 250 volts; and both wires of such branch or tap circuits must be protected with fuses meeting the requirements of this ordinance. Fuses in branch cut-outs must not have a rated capacity greater than 6 amperes on 110 volt systems, and 3 amperes on 200 volt systems.

For 3-wire (not 3-phase) systems the fuse in the neutral wire, except as otherwise specified in this section, may be omitted, provided the neutral wire is of equal carrying capacity to the larger of the outside wires and is grounded in approved manner. Link fuses, except on switchboards, must, when used, be mounted on non-combustible, non-absorptive and insulating material, such as slate or marble, and must be enclosed in dust-tight, fireproof cabinets. Each phase of alternating current motor circuits, except when subject to approved supervision, must be protected by an approved fuse; provided, that single phase motors may have one side protected by an approved automatic circuit-breaker only, if the other side is protected by an approved fuse. For circuits having maximum capacity greater than that for which enclosed fuses are allowed, use of approved circuit-breakers only may be permitted by Inspector.

Section 74. Switches for constant-potential systems must be placed on all service wires in a dry and readily accessible place, as near as possible to the point where the wires enter the buildings, and arranged to cut off the entire current from meters and house services; provided, that in private plants, where the main switches are conveniently located, yard wires running from building to building may not be considered as service wires, subject to approval of Inspector. 74

Switches must be grouped as much as practicable, and where located subject to an accumulation of combustible flying particles, must be enclosed in dust-tight cabinets meeting the requirements specified in Sec. 54.

Single pole switches must not be used as service switches except in a 2-wire branch or tap circuit supplying not over 660 watts.

Section 75. Single throw knife switches must be so placed that gravity will tend to open rather than close them; double throw knife switches may be mounted for either vertical or horizontal throw; and wherever possible, all switches must be so wired that blades will be "dead" when switch is open. Three-way switches must be treated as single pole switches, and so wired that only one pole of the circuit is carried to either switch. 75

Section 76. Switch or fixture outlets, unless outlet boxes giving proper support for fixtures are used, must have tubes therefor held in a supporting block ⅞" thick, securely fastened between studs or floor timbers and flush with the back of lathing; provided, that when this method is impossible, subject to approval of the Inspector, wooden base blocks not less than ¾" thick, securely screwed to lathing, shall be provided for switches and for fixtures which are not attached to gas pipe or conduit. 76

Flush switches or receptacles must be enclosed in iron or steel boxes, meeting the requirements of Sec. 35, and no push buttons for bells, gas-lighting circuits or similar equipment shall be placed in the same wall plate with switches controlling the wiring for electric light or power. Snap switches used in cleat work must comply with requirements of Sec. 46; provided, that the sub-bases used in moulding work may be made of hard wood, or omitted if switch is approved for mounting directly on moulding.

Section 77. Electric heaters must be placed in a safe location isolated from inflammable materials, and be treated as sources of heat; and must each be provided with a name plate giving the maker's name and the normal capacity in volts and amperes. They must be protected by a cut-out and be controlled by indicating switches; and must have feed wires, cut-outs and switches easily accessible, in plain sight at all times, and fully protected from accidental or intentional interference. Switches must be double pole, except when the device controlled does not require more than 660 watts. 77

four 2-wire or three 3-wire circuits of the same system; and the two or more wires of an alternating current circuit must be installed in the same conduit.

Section 84. Wires for concealed knob and tube work must have rubber insulation equivalent to that specified in Secs. 16 to 19, inclusive; must be rigidly supported as specified in Secs. 79 and 80, on non-combustible, non-absorptive insulators which separate the wire at least 1" from the surface wired over; must be kept at least 5" apart when possible; must be run singly on separate timbers or studdings; must be separated from contact with walls, floor timbers and partitions through which they pass by non-combustible, non-absorptive insulating tubes, such as glass or porcelain; and where passing through timbers at bottom of plastered partitions must be protected by additional tubing of same kind extending at least 4" above the timber. At distributing centers, outlets or switches where space is limited and the 5" separation cannot be maintained, each wire must be separately encased in a continuous length of approved tubing. 84

When, in a concealed knob and tube system, it is impracticable to place the whole of any circuit on non-combustible supports of glass or porcelain, approved metal conduit or approved armored cable must be used; provided, that where the difference of potential between the wires is not over 300 volts, and the wires are not exposed to moisture, they may be fished on the loop system if separately encased throughout in a continuous length of approved flexible tubing. All such mixed concealed knob and tube work must comply with all the requirements of this ordinance for conduit wiring and armored cable, when it is used.

Wires for concealed knob and tube work must at all outlets except where conduit is used be protected by approved flexible insulating tubing extending in continuous lengths from the last porcelain support to at least 1" beyond the outlet; and in case of combination fixtures the tubes must extend at least flush with outer end of the gas cap.

Section 85. Wires for fixture work must have a rubber insulation meeting the requirements of Sec. 28; must be not less in size than No. 18; must, when fixtures are wired outside, be so secured as not to be cut or abraded by pressure of the fastenings or motion of the fixtures; and under no circumstances must there be a difference of potential exceeding 300 volts between wires contained in or attached to the same fixture; nor must wires of different systems be contained in or attached to the same fixtures; supplying conductors, and particularly those spliced to fixture wires, must be kept clear from the grounded parts of gas pipes; and shells or outlet boxes where used must be made sufficiently large to allow fulfillment of this requirement. The wiring of all forms of special designs of show case fixtures, ceiling bulls-eyes and similar appliances in which it is exposed to temperature exceeding 120° Fahr., from the heat of the lamps, must be submitted to the Inspector for examination, test and approval before being introduced for use; and everywhere practicable wire with slow-burning insulation which will meet the requirements of Sec. 21 may be used, subject to approval of the Inspector. 85

Section 86. Armored cables must meet the requirements of Sec. 32; must be continuous from outlet to outlet or to junction boxes. Armor of the cable must enter and be firmly secured to all fittings. Service connections for underground service must have armor run continuously into main cut-out cabinets or gutters surrounding panel-board. 86

Armored cable must be equipped at every outlet with an outlet box meeting requirements of Sec. 35; provided, that where impracticable to install boxes, outlet plates may be used, or in special cases where necessary, in judgment of the Inspector, both outlet box and plate may be omitted, provided the armored cable shall be firmly and rigidly secured in place.

Armored cable must have its metal armor permanently and effectively grounded, and where sections of armored cable are installed without being fastened to any metal structure of building or grounded metal piping, they must be bonded together and joined to a permanent and efficient grounded connection. Armored cables and gas pipes must be securely fastened in metal boxes to secure approved electric connection; and where boxes used for centers of distribution do not afford such connection the armor of cable must be joined around them by approved bond wires.

Armored cable for alternating current systems must have the two or more conductors of the cable enclosed in one metal armor.

The armored cable must have a lead covering at least 1-32" thick between the outer braid of the conductor and the steel armor, when installed in fireproof buildings in course of construction or afterwards if concealed, or where it is exposed to the weather, or in damp places, such as breweries, stables, etc.; and where entering junction boxes and at all other outlets, must be provided with approved terminal fittings, unless special approved design of junction or outlet boxes is used. Junction boxes must always be installed in such a manner as to be accessible. All bends must be made so that armor of the cable will not be less than 1½".

Section 87. Interior conduits must not be relied upon for insulation between wire and wire, or between the conductor and the ground; must first be installed as a complete conduit system without the conductors; must not contain any conduit tube with an internal diameter less than ⅝"; must be equipped at every outlet with an approved outlet box; or, when approved by the Inspector, with an outlet plate; must be continuous from outlet to outlet or to junction boxes; must properly enter and be secured to all fittings, and be provided with approved bushings or nipples for protection of the wire from abrasion; and must be firmly and effectually grounded and bonded as provided in Sec. 86. The outlet box or plate must be so installed that it will be flush with finished surface, and if this surface is broken it must be so repaired that no gaps or spaces shall be shown around the edge of outlet box or plate; provided, that in buildings already constructed where conditions are such that neither outlet box or plate can be installed, they may on approval of City Electrician be omitted, but conduit ends must be bushed and firmly secured in place. Conduits and gas pipes must be securely fastened in metal outlet boxes so as to secure good electrical connections; and all protective coating of non-conducting material, such as enamel, must be thoroughly removed from threads of couplings and conduit and the surface of boxes and fittings. Conduits must, where necessary to meet the approval of the Inspector, be bonded to meet the requirements for metal armor of cable in Sec. 86. 87

All junction boxes for interior conduits must always be installed in a manner to be accessible, and all elbows or bends must be so made as not to injure the conduit or lining of the same. The radius of the curve of the inner edge of any elbow or bend must not be less than 3½", unless by special written consent of the Inspector; and conduit must not have more than the equivalent of 4 quarter bends from outlet to outlet; provided, that bends at outlets are not to be counted in this connection.

88 **Section 88.** Metal mouldings must be continuous from outlet to outlet, or to junction boxes, or approved fittings designed especially for use with metal mouldings; and must at all outlets be provided with approved terminal fittings to protect insulation of conductors from abrasion, where such protection is not afforded in approved manner by construction of the boxes or fittings.

Metal mouldings, where passing through a floor, must be carried through an iron pipe extending from the ceiling below to a point 5' above the floor to serve as an additional mechanical protection, and to exclude the presence of moisture; provided, that where the mechanical strength of the moulding is adequate this section may, with the approval of the Inspector, be modified to require the protected piping from the ceiling below to a point at least 3" above the flooring. Backing for metal moulding must be secured in position by screws or bolts, the heads of which must be flush with the metal.

Metal mouldings must be permanently and effectively grounded, and must be so installed that adjacent lengths of moulding will be mechanically and electrically connected and secured at all points. Metal mouldings must be firmly secured in metal outlet boxes, so as to secure good electrical connection; and must be bonded to meet the requirements for metal armor of cable in Sec. 86. It must be used for exposed work only, and must be so installed and constructed as to form an open raceway, to be closed by the capping or cover after the wires are laid in.

89 **Section 89.** Fixtures must, when supported from the gas piping or any grounded metal work of the building, be insulated therefrom by an insulating joint in accordance with the requirements of Sec. 58; must have all burrs or fins removed before conductors are drawn in to the fixture; must be tested for and free from contacts between conductors and fixtures, short-circuits and grounded connections before supply conductors are connected therewith; and canopies where placed against plaster walls or ceilings in fireproof buildings, or against metal walls or ceilings, or plaster walls or ceilings on metallic lathing in any class of buildings, must be thoroughly and firmly insulated from such walls or ceilings.

Gas outlet pipes must be protected above the insulating joint by approved insulating tubings, and outlet tubes must be of sufficient length to extend below the insulating joint, and be so secured that they will not be pushed back when canopy is put in place.

All fixture arms made of tubing smaller than ½" outside diameter, also the arms of all 1-light brackets, must be secured after they are screwed into position by use of a set screw properly placed, or by soldering or cementing, or some approved method of preventing the arms from becoming unscrewed. Arm must not be of tubing lighter than No. 18 Brown and Sharpe gauge, and must have at screw joints not less than 5 threads all engaging, provided that this does not apply to cast or heavy arms.

Fixtures must, when installed on outside of frame buildings, be of waterproof construction, and must not be used in show windows or in immediate vicinity of especially inflammable material, when wired on the outside. Flat canopies for use on electric and combination fixtures must only be used in connection with outlet boxes.

90 **Section 90.** Sockets must be enclosed in a vapor-tight globe, and supported on a pipe hanger, and wired with rubber covered wire, meeting requirements of Secs. 16 and 19, soldered directly to the circuit in rooms where inflammable gases may exist.

Waterproof sockets must be used in damp or wet places, must be hung by separate stranded rubber covered wires not smaller than

No. 14, which must be twisted together when pendant exceeds 3′ long; and must have wires soldered direct to the circuit wires, but supported independently of them.

Key sockets must not be installed over inflammable material, or where exposed to flyings of combustible particles.

Section 91. Flexible cord must have insulation and covering to meet the requirements specified in Secs. 23 to 26, inclusive of this ordinance; must not be used where difference of potential between the two wires exceeds 300 volts; must not be used as a support for clusters; must be protected by insulating bushing where cord enters any socket and must be so suspended that the entire weight of the socket and lamp will be borne by a knot or some approved device under the bushing in the socket and above the point where the cord comes through the receiving block or rosette. 91

Flexible cord must not be used in show windows, except when provided with metal armor. For all portable work, where conductors are liable to be moved about sufficiently to come in contact with surrounding objects, flexible cables supported independently of the overhead circuit shall be used with insulation, according to Sec. 25.

Portable lamps must be surrounded with substantial wire guard when necessary, in judgment of City Electrician, to prevent coming in contact with inflammable material to protect them from breakage.

Section 92. Arc lights on constant-potential circuits must have a cut-out which will meet with the requirements of Sec. 67 for each lamp or series of lamps; must be supplied with globes and protected by spark arresters and netting as required in Sec. 70; must be connected with stranded conductors not smaller than No. 14 from last point of support to the lamp, when arranged for raising and lowering; and must only be equipped with resistances or regulators enclosed in non-combustible material, which shall be considered as sources of heat and shall not be composed of incandescent lamps. 92

Branch conductors for supplying arc lamps must have a carrying capacity of 50% in excess of the normal current required by the lamp.

Section 93. Mercury vapor lamps must have a cut-out for each lamp or series of lamps, except when contained in a single frame and lighted by a single operation, in which case not more than 5 lamps must be dependent upon a single cut-out. They must be equipped with only such resistances or regulators as are enclosed in non-combustible cases, such resistances to be treated as sources of heat; and in localities where these resistances or regulators are subject to flyings of lint or combustible material all openings through the cases must be protected by fine wire gauze. 93

Section 94. High potential vacuum tube systems must have the tube so installed as to be free from mechanical injury or liability to contact with inflammable material. High potential coils and regulating apparatus must be installed in an approved steel cabinet not less than 1-10″ thick, which shall be well ventilated in such manner as to prevent the escape of any flame or sparks caused by burn-out in the various coils; and all apparatus or appliances in this box must be mounted on slate base and have the enclosing case positively grounded. Supply conductors leading into this case must be installed in accordance with the requirements of this ordinance governing such wires which do not carry a potential of over 300 volts. 94

Section 95. Economy and compensator coils for arc lamps must be mounted on non-combustible, non-absorptive, insulating supports; must allow an air space of at least 1″ between frame and support, and must be generally treated as sources of heat. 95

Section 96. Decorative light systems shall be used only when special permission, in writing, is given therefor by the Inspector; provided, that difference of potential between the wires of any circuit shall not exceed 150 volts, and that no group of lamps requiring over 1320 watts shall be dependent on one cut-out. 96

THEATERS.

Section 97. Theaters, when the source of supply is outside of the buildings, must have, if practicable, two separate and distinct services fed from separate street mains. One service must be of sufficient capacity to supply current for the entire equipment of the theater, and the other service must not have less than sufficient capacity to supply current for all exit lights, all lights in lobbies, stairways, corridors, and other portions of the theater which are accessible to the public, and are normally kept lighted during the performance. 97

Where the source of supply is an isolated plant within the same building, an auxiliary service of at least sufficient capacity to supply all emergency lights (last above mentioned) must be installed from some outside source, or suitable storage battery within the premises.

All permanent construction on the stage side of the proscenium walls must be in conduit except the border and switch board wiring.

Switchboards must be made of non-combustible, non-absorptive material, and must be protected by an approved guard-rail where accessible from stage level, unless otherwise approved by the City Electrician.

Section 98. Foot lights must be wired so that no set of lamps requiring more than 1320 watts will be dependent upon one cut-out; must be wired in conduit with each lamp enclosed in an outlet box, the whole to be enclosed in a steel trough having metal of a thickness not less than No. 20 gauge; provided, that each lamp may be mounted on or in an iron or steel box, constructed so as to enclose all the wires and live parts of receptacles. 98

Section 99. Borders must be constructed of steel of a thickness not less than No. 20 gauge, treated to prevent oxidization; and must be suitably stayed and supported by a metal framework designed so that flanges of reflectors will protect lamps. They must be wired in all respects to meet the requirements of Sec. 98. 99

They must be suspended with wire rope, which must be insulated from border by at least two approved strain insulators; and wire with slow-burning insulation must be used for wiring the border proper.

Borders must be provided with suitable guards to prevent scenery or other combustible and inflammable material coming in contact with the lamps; must have continuous cables of approved stranded wire from stage switchboard to border; must have conduit construction from switchboard to point where cables must be flexible to permit raising and lowering of border, and flexible portion must be enclosed in approved fireproof hose or braid with suitable support; provided, that approved junction boxes will be permitted on fly floor and rigging loft in existing theaters where wiring has been completed and approved by Inspector.

Section 100. Stage pockets must be of approved type, controlled from the switchboard, each receptacle to be of not less than 50 ampere rating, and to be wired with a separate circuit to its full capacity. 100

Proscenium side lights must be so installed that they cannot interfere with the operation of or come in contact with the curtain.

Scene docks must have large lamps so located and installed that they shall not be liable to mechanical injury.

Curtain motors must be of iron-clad type and installed according to the provisions of this ordinance.

Section 101. Dressing rooms must be wired in conduit; provided, that in existing buildings armored cable may be used where it is impracticable to install conduit; must have all pendant lamps equipped with reinforced cord or cable, and must have all lamps provided with approved guards. 101

Section 102. When dampers for control of stage flues are released by an electric device, the electric circuit operating same must be normally closed. Magnet operating damper must be wound to take full voltage of circuit by which it is supplied; must use no resistance device in supply circuit, and must be installed in an iron box, with tight, self-closing door, located in loft above scenery. 102

Damper must be controlled by at least two single-pole switches, mounted in iron boxes provided with self-closing doors without lock or latch. One switch shall be located at station of stage electrician and the others as designated by the Inspector.

Section 103. Arc lamps used for stage effects must be substantially constructed of metal throughout, except where the use of approved insulating material is necessary; must have mica for frame insulation; and shall be so designed as to provide for proper ventilation and prevent sparks being emitted from the lamp when in operation. 103

Front opening must be provided with a self-closing, hinged door-frame, in which wire, glass or gauze may be inserted; provided, however, that in lens lamps the front may be stationary and a solid door be provided on back or side.

Lamps must be provided with 1-16" iron or steel guard, which shall have a mesh not larger than 1", and be substantially placed over top and upper half of sides and back of lamp frame; and this guard must be placed at least 2" distant from the lamp frame, and substantially attached thereto by riveted supports.

Switches on standards of stage arc lamps must be so constructed as to prevent accidental contact with any live portion of same; and all stranded connections in lamp and at switch and rheostat must be provided with approved lugs.

Rheostat for lamp, if mounted on standard, must be raised to a height of at least 3" above floor line; and must be surrounded with a firmly attached metal guard having a mesh not larger than 1 square inch, which guard is to be kept at least 1" from outside frame of rheostat.

A competent operator must be in charge of such arc lamp during any performance; provided, however, that one operator may have charge of two lamps, when same are not more than 10' apart, and so located that he can properly watch and care for both lamps.

Section 104. Bunch lights must be substantially constructed of metal and must not contain any exposed wiring; must have cable feeding the same bushed in an approved manner where passing through metal, firmly secured to prevent any mechanical strain coming on the connection 104

Strips for strip lights must be constructed of steel of a thickness not less than No. 20 gauge, treated to prevent oxidization, and suitably stayed and supported by metal framework; and must have cable bushed in approved manner where passing through the metal and firmly secured.

Section 105. Portable plugging boxes must be so constructed that no current-carrying parts will be exposed; and each receptacle must be protected by approved fuses mounted on slate or marble bases and 105 enclosed in a fireproof cabinet equipped with self-closing doors. Each receptacle must be constructed to carry 30 amperes without undue heating; the bus-bars must have a carrying capacity equivalent to the current required for the total number of receptacles, allowing 30 amperes to each receptacle, and lugs must be provided for connection of the master cable.

Pin-plug conductors, when of approved type, used to connect approved portable lights and appliances, must be so installed that the "female" part of the plug will be on the live end of the cable; and must be so constructed that tension on the cable will not cause strain on the connection.

Section 106. Where brackets are used for lights on the scenery they must be wired entirely on the inside, must have fixture stem coming through to back of scenery, and end of stem must be properly bushed.

String or festoon lights must be wired with cable complying with the provisions of this ordinance, which shall have joints where taps for lights are taken from same, properly made, soldered and taped; and lamps, where used in lanterns or similar devices, must be provided with approved guard. Where taps are taken from cable, they must be so staggered that joints of different polarity shall not come immediately opposite each other and be suitably protected from strain.

Where devices are used for producing special effects, as lightning, water falls, etc., the apparatus must be so constructed and located that flames and sparks resulting from the operation thereof cannot come in contact with combustible materials.

Section 107. Theaters and auditoriums must have all wiring installed in conduit; provided, however, that in existing buildings, where it is impracticable to install conduit, armored cables may be used, all in accordance with the provisions of this ordinance.

All fuses used in connection with lights illuminating all parts of the house used by the audience must be installed in fireproof enclosures so constructed that there will be a space of at least 6" between the fuses and the sides and face of the enclosure.

Exit lights must not have more than one set of fuses between the lamps and the service fuses; must, including all lights in halls, corridors, or any other part of the building used by the audience, except the general auditorium, be fed independently of the stage lighting; and must be controlled only from the lobby or other convenient place located in the front of the house.

Every portion of the theater for the use or accommodation of the public, including all outlets leading to the street, and all open courts, corridors, stairways, exits and emergency exit stairways, must be well and properly lighted during every performance, and remain lighted until the audience has left the premises.

Section 108. Outline lighting must be supplied by wires connected only to low potential systems, and the use of moulding will not be permitted. For open work wires must have an insulating covering of rubber, must be rigidly supported on non-combustible, non-absorptive insulators to separate the wires at least 1" from the surface wired over; must be separated at least 2½" for voltages up to 300 and 4" for higher voltages; all as hereinbefore specified as to materials. Where flexible tubing is used the ends must be sealed and painted with moisture repellent and kept at least ½" from the surface wired over.

Wires for use in rigid or flexible steel conduit must comply with requirements for unlined conduit work, and where armored cable is used the conductors must be protected from moisture by a lead sheath between armor and insulation. Circuits must be so arranged that not more than 1,320 watts will be finally dependent upon a single cut-out; nor shall more than 66 sockets or receptacles be connected to a single circuit. Sockets and receptacles must be of keyless porcelain type and wires must be soldered to lugs on the same.

Outline lighting must be protected by its cut-out and controlled by its own switch; and all cut-outs, switches, time switches, flashers, and similar appliances, must be of approved design and must if located inside the building be installed as hereinbefore required for such devices. If outside the building these devices must be enclosed in a cast-iron box or in a steel box at least .125" thick; and boxes must be so constructed that they shall be moisture proof, and when switch operates the blade shall clear the door by at least 1".

Section 109. Arc lamps used as a part of moving picture machines must be constructed similar to arc lamps for stage of theaters, and must be wired with conductors not smaller than No. 6. **109**

Rheostats for these lamps must conform to rheostat requirements for theater arcs.

The top reel of a moving picture machine must be encased in a steel box with hole at the bottom only large enough for film to pass through, and cover so arranged that this hole can be instantly closed. No solder shall be used in the construction of this box.

A steel box must be used for receiving the film after being shown, which box shall be constructed with a hole in the top only large enough for the film to pass through freely, and with a cover so arranged that this hole can be instantly closed; provided, that an opening may be placed at the side of the box to take the film out, with a door hung at the top, so arranged that it cannot be entirely opened, and equipped with a spring catch to lock it closed. Solder must not be used in the construction of this box.

The handle or crank used in operating the machine must be secured to the spindle or shaft so that there shall be no liability of its coming off and allowing the film to stop in front of the lamp.

A shutter must be placed in front of the condenser, arranged so as to readily be closed.

A metal pan must be placed under the arc lamp to catch all sparks. Extra films must be kept in metal box with tight-fitting cover. The moving picture machine must be placed in an enclosure or house made of fireproof material, which shall be thoroughly ventilated and large enough for operator to walk freely on either side or back of the machine. All openings in this booth must be so arranged as to be entirely closed by doors or shutters constructed of the same or equally good fire-resisting material as the booth itself. Doors or covers must be arranged so as to be held normally close by spring hinges or equivalent approved devices. Machines must be operated by hand.

Section 110. Electric gas lighting must not be used on the same fixture with electric light, except where frictional system of gas lighting is used. **110**

HIGH POTENTIAL SYSTEM.

Section 111. Wires for high potential systems having a difference of potential of over 550 and less than 3,500 volts, inside buildings and other structures, must have rubber insulating covering in accordance with Secs. 16 to 22, inclusive, and never be encased except as hereinafter required in Sec. 119; must be rigidly supported at least 8" apart on glass or porcelain insulators, which must support the wire at least **111**

every 4½′, and raise the wire at least 1″ from the surface wired over; provided, that in buildings of mill construction, mains not smaller than No. 8 may, subject to the approval of the Inspector, be separated 10″ and run from timber to timber, not breaking round, and may be supported at each timber only. Wires must be protected on side walls by substantial boxing, extending not less than 7′ from the floor, enclosed at the top, and retaining air space of 1″ around the conductors. When crossing floor timbers in cellars, or in places where exposed to possible injury, wires must be attached by their insulating supports to the under side of a wooden strip not less than ½″ thick.

112 **Section 112.** Multiple-series and series-multiple systems of lighting must not be installed on high potential systems inside buildings or other structures, and wires of such systems of any potential must not be attached to gas fixtures.

113 **Section 113.** Primary wires for high-potential systems carrying over 3,500 volts must not be brought into or over any building, except central power stations and sub-stations; and secondary wires must be installed according to rules for high-potential systems when their immediate primary wires carry current at a potential exceeding 3,500 volts; provided the primary wires are not entirely underground within the city limits or installed in other approved manner.

114 **Section 114.** The wiring of any building must test free from grounds and the complete installation must have insulation between conductors, and between all conductors and the ground (not including attachments, sockets and receptacles) not less than that given in table B.

The test must be made with all safety devices and cut-outs in place, and if the lamp sockets, receptacles, electroliers and other equipment are also connected only one-half resistance specified in above table will be required by Inspector.

115 **Section 115.** That portion of the service wires between the main cut-out and switch and the first support from the cut-out or switch on outside of the building must have rubber insulation which will meet the requirements of Secs. 16 to 19, inclusive; but from the above mentioned first support to the line, service wires may have weatherproof insulation which will meet the requirements of Sec. 22, if said wires are kept free from awnings, shutters, swinging signs and other attachments to the building.

116 **Section 116.** All wires on or about the buildings must not be less than 1′ apart; must not be in contact with any substance other than their insulating supports; and must be so placed that moisture cannot form a cross connection between them.

Wooden blocks, to which insulators are attached, must be covered over their entire surface with at least 2 coats of waterproof paint.

Wires must be at least 7′ above the highest point of roofs, less than ¼ pitch, and at least 1′ above the ridge of any roof of more than ¼ pitch over which they pass, or to which they are attached. They must be protected by dead, insulated guard irons or wires from contact with other wires or substances to which current may leak.

All wires must be supported upon petticoat insulators of glass or porcelain; must be spliced in a manner to be mechanically and electrically secure without solder, and the joints must then be soldered and covered with an insulation equal to that on the conductors.

All wires must, where they enter any buildings, have drip loops outside, and the hole through which the conductors pass must be bushed with non-combustible, non-absorptive, insulating tubes slanting upward toward the inside; provided, however, that service wires for systems having a potential not over 300 volts may be brought into a building through a single iron conduit, curved downward at its outer end, and carefully sealed to prevent the entrance of moisture, the outer end to be at least 1′ from any woodwork, and the inner end to enter a main cut-out cabinet.

Section 117. Wires from poles to buildings must run at right angles, except as otherwise approved, across the streets, alleys or sidewalks; must, in crossing, pass above or below the wires of another company, and not among a group of wires; must cross other wires at right angles, and be strung in a manner to avoid swinging contacts; must be supported by a pole or fixture as near the point of crossing as practicable; must not be attached to chimneys, and must be at least 2′ from any fire escape. 117

A clearance space on buildings of at least 4′ must be maintained between all electric light and power wires, and all other wires such as telegraph and telephone wires where the same parallel.

Wires must when brought to the building below the level of a roof, commence as high up as possible, and run vertically down, between and not in front of windows, hoist-ways, etc., and as near the walls as the nature of the surface will allow.

Where wires come in contact with pipes, cornices, awning frames, and covers, and places where bends occur, outside of building, they must be protected by flexible metallic conduit running from one support to the other, and the ends of the conduit must be taped, painted and made as water-tight as possible.

GENERATORS, MOTORS AND MOTOR-GENERATORS.

Section 118. Generators shall be located in a dry place, and shall not be located in a place where they may be exposed to inflammable gases or flyings of combustible particles; shall have all conductors to switch-boards, rheostats or other instruments, and thence to outside line connections, in plain sight or readily accessible in a smooth runway; and such conductors shall be installed and have an insulating covering in accordance with the requirements specified for wires carrying a current of the same potential; provided, that where run in conduit, or where lead covered cables are used, conductors and conduits shall meet the requirements for insulation and protection hereinbefore specified for such work. Generators shall when operating at a potential over 550 volts, have their base frames permanently and effectually grounded; and when operating at a potential of 550 volts or lower, shall be insulated from the ground wherever practicable. Wooden base frames used for this purpose, and wooden floors, which are depended upon for insulation where it is necessary to omit the base frames, shall be kept filled to prevent absorption of moisture and must be clean and dry. Where the Inspector adjudges frame insulation to be impracticable, he may permit an improved insulation, or the use of an improved insulated platform around said electric equipment; in which case the frame must be permanently and effectually grounded. Constant potential generators, except alternating current machines and their exciters, must be protected from excessive current by safety fuses, or equivalent automatic devices of approved design in each lead wire; and each machine must be provided with a name plate giving its capacity in volts and amperes and its normal speed in revolutions per minute. All terminal blocks on machines must be of non-combustible, non-absorptive, insulating material. 118

Section 119. Motors operating at a potential in excess of 550 volts and motors operating at a potential of 550 volts or less, must be equipped with base frames and otherwise installed according to the 119 provisions for generators of the same potential in Sec. 118. Motors operating at a potential of 550 volts or less must be wired in accordance with the provisions of this ordinance for wires carrying a current of the same volume and potential.

Motors operating at a potential between 550 and 3,500 volts must be wired with insulated multiple conductors in the form of metal sheathed cable in unlined metal conduits firmly secured in place; the metal sheath to be permanently and effectually grounded, and the entire installation shall comply with the requirements hereinbeore specified for similar potential. The insulation of the conductors for motors operating at 550 to 3,500 volts must be protected, where leaving the metal sheath at outlet, by means of a pothead or approved method of protection from moisture and mechanical injury; and the conduit must be firmly bonded to the metal casings of all fittings and apparatus connected to the inside high-potential circuits.

Motor leads or branch circuits must be designed to carry a current at least 25% greater than that for which the motor is rated; provided, that where wires under this requirement are over-fused to protect for starting current, the size of the wires must be sufficient to insure their protection by the larger fuses.

Section 120. Motors must not be run in series-multiple or multiple-series; provided, however, that they may be so operated on constant-potential systems by special permission of the City Electrician. They must be covered with a waterproof cover when not in use; and if deemed necessary by the Inspector must be enclosed in an approved case. When combined with ceiling fans, they must be hung from insulated hooks or there must be an insulator interposed between the motor and the support.

Section 121. Battery rooms must be thoroughly ventilated and all secondary batteries must be mounted upon non-combustible, non-absorptive insulators, such as glass or thoroughly vitrified and glazed porcelain. No metal liable to corrosion shall be used in connection with secondary batteries, and all wiring in rooms where acid fumes exist must be in accordance with Sec. 81. When current for light and power is taken from primary or secondary batteries, the same general regulations must be observed as apply to similar equipment fed from dynamo generators developing the same difference of potential.

Section 122. Transformers must not be placed inside of any building, excepting central stations and sub-stations, nor attached to the outside walls of any building whatsoever, without special permission from the City Electrician. When placed in any enclosure, the enclosure must be constructed of fire-resisting material; must be reasonably airtight, except that it must be thoroughly ventilated to the outdoor air, through a chimney or flue; must be used only for this purpose, kept securely locked, and access to same allowed to only responsible persons. Transformers must be insulated from the ground in an approved manner and surrounded by at least 6" of air space on all sides.

Section 123. Switchboards must be made of non-combustible material, or of hard wood in skeleton form filled to prevent absorption of moisture; must be accessible from all sides, and have at least 18" clear space between any wall and the outermost point of any electrical equipment on the back of the board; provided, that where all electrical equipment is on the face of the switchboard, same may be placed against a non-combustible wall such as brick or stone. When switchboard is made of wood all live parts of electrical equipment thereon must be mounted on non-combustible, non-absorptive, insulating material; and on any switchboard the electrical equipment must

be separated by similar material. A space of at least 10" must be left between any floor and the base of the board, and a space of 3' between any ceiling and the top of the board, provided that said board is not supported by a floor and protected by a ceiling of non-combustible material. Switchboards must be kept free from moisture, and the distance between carrying parts of electrical equipment of opposite polarity must not be less than the space given for tablet and panel boards in Sec. 53.

124 **Section 124. Resistance boxes and equalizers must be placed on a switchboard or at a distance of at least 1' from combustible material, or separated therefrom by non-combustible, non-absorptive, insulating material not less than ½" thick, such as slate or marble; the separating material must be continuous between the devices and the support, and the attachments of the same to its support and to the device must be independent of each other. All bolts for supporting rheostat must be countersunk at least ⅛" and filled.**

Incandescent lamps used for protective resistance, in connection with automatic rheostats, must be mounted in porcelain receptacles upon non-combustible supports, and provided with a name plate permanently attached outside the receptacle and stamped with the candle-power and voltage of the lamp to be used in each receptacle; provided, however, that no incandescent lamp may be used for protective resistance which carries or controls the main current or constitutes the regulating resistance of the electrical device.

Wherever insulated wire is used for connections between the rheostat and its contact plate the insulation must be of a slow-burning character as hereinbefore provided in Sec. 21; provided, however, that for large field resistance where the contact plates are not mounted thereon, the connecting wires may run together in groups, if so arranged that the maximum difference of potential between any 2 wires in the group shall not exceed 75 volts; in which case each group of wires must be mounted on non-combustible, non-absorptive insulators, giving at least ½" separation from the surface wired over or be run in an approved lined metallic conduit or equivalent.

Starting rheostats must be installed to meet requirements of this section and must have as great carrying capacity as the motor itself, provided the rheostat arm does not have a spring throw adjustment so arranged that the arm cannot remain at any intermediate position. Auto-starters must be installed to meet requirements of this section, and must be enclosed in dust-tight, fireproof cabinets, in all wet, dusty or linty places, or where there is any liability of short-circuits across exposed current-carrying parts by accidental contact; provided, that a special motor room is not constructed for enclosing the starting apparatus safety device.

Each motor and resistance must be protected by an automatic circuit-breaker, or by a cut-out, and controlled by a switch which, except for crane motors, plainly indicates whether on or off, as hereinbefore described in Secs. 44 to 48 inclusive; provided, that for motors of a capacity not exceeding ¼ horsepower on a circuit with a potential not exceeding 300 volts, single pole switches may be used. The switch and rheostat for each motor must be located within sight of the motor, except where special permission to locate same otherwise is given by the Inspector. Overload release devices on motor starting rheostats shall be allowed in place of cut-out if they are inoperative during the starting of the motor. An automatic circuit-breaker disconnecting all wires of the circuit may with the approval of the Inspector be permitted in place of both switch and cut-outs.

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